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AN AEGIS/SPECIALIST PUBLICATION

FEBRUARY 1988 \$7.20

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PRESS
GROUP

DON'T FORGET

AMIGA

INSIDE
NEXT MONTH'S
ISSUE

VOLUME 4
NUMBER 5

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DATA STATEMENTS

Commodore's Golden Girl

Tessa Sanderson's bid to secure her Olympic Gold Medal is being fully backed by her new sponsors Commodore Business Machines in a deal inspired by actor and ex-pop star Adam Faith.

Sanderson's success in the previous event at the 1984 Olympics has led to several television appearances which she has regarded as attempts by many sporting commissions. It was her role as promoting sports in schools that attracted Commodore's managing director Steve Franklin to consider the sponsorship move.

"We want to help Tessa in her efforts to retain the gold medal she won in Los Angeles, and in return hopefully we shall benefit from the

new media coverage she attracts. In addition to the Tessa deal, also with schools, by promoting sports, education, schools savings and universities are very much targeted for us and Tessa will be helping us in our Roadshows, which will visit UK educational establishments throughout the year."

When the Seoul Olympics appear on television later this year keep your eyes peeled for the Commodore logo which Tessa has promised to wear whenever she appears in public.

By G. Adam Faith, Jack Cox, Tessa Sanderson and Steve Franklin



The Grand Slam Team: From left to right: Mark Ross, Tony Kenneigh, Steve Franklin, Peter Sheehan, Paula MacKinnon, Chris de Lathauwer, Constance, Cindy Elliott, Stephen Hall, Andrea Paddy, Betty Moran.

Good Buy APS

In a show of total confidence, Stephen Hall, Managing Director of Argus Press Software, has successfully concluded a management buy-out of the Company after several months of negotiation. The deal was checked when Hall bought the whole of the issued share capital from its previous owners, the Argus Press Group.

As the new Chairman and Managing Director, Hall does not anticipate any great changes in the near future apart from a change of address from the Argus Press Offices in Victoria House and a change of company name to Grand Slam Entertainment.

The buy-out includes all of the APS assets and liabilities including the back catalogue, current stock, product under development and associated receivables. The trading names, Labyrinth, Mind Games and Grand Slam were also part of the deal.

Hall has bought the Company at a time when it has never looked stronger with products such as Mind Outbreak and the arcade machine Predator poised for release.

Over the past 15 months there have been several additions to the staff at APS. Product Manager, Peter Sheehan joined Hall's team from Amstrad and Dennis Lovell, Sales Manager, was previously with Microsoft. In an advisory capacity, Tony Kenneigh, ex-Grand Slam Operator, also lends his support and experience to the Sales Department as well as running his own company.

Despite the trials and tribulations of APS' investment, Andrea Noble has weathered the storm since 1985 and is duly awarded the new responsibilities of Director and Company Secretary of Grand Slam Entertainment.

Law has not left in Cindy Elliott, Hall's Personal Assistant, who has the Herculean task of keeping the administrative running smooth.

As a part of the Argus Group, Four Commodore back APS is fond farewell and wishes Grand Slam Entertainment every good fortune in the future.

Touchline:
Grand Slam Entertainment, Victoria House, Leicester Place, London WC2H 7NE. Tel: 01-479 0660.

Stand and Deliver

If you have to move your printer from station to station, Building Computer Services have the answer to your prayers in the form of a Mobile Printer Stand.

The unit is strong enough to take the kind of wear and tear that an office environment dishes out but the strength is tempered with lightness. The simple design features a split, one-piece, steel top tray and a simple stainless rubber mat big enough to take either B0 or 112 column printers. Below there is plenty of room for a stack of unprinted paper and a wire framed collection basket.

The unit is finished in brown and stainless steel with lockable forward casters. The price is £118 + VAT.

Focuser

Building Computer Services Phoenix House, 41-43 Broad Street, East Dulwich, London SE16 7WE. Tel: 0471 89111.



Building Computer Services

Focus on Germany

A West German order for 13 million of its High Focus floppy disks has established RPS as market leader in the floppy disk market in Europe - adding to an established reputation as a major force in the French, Italian, Belgian, Norwegian and Spanish markets.

As holder of the marketing rights in the Commodore label in West Germany, RPS has signed the lucrative contract with disk wholesaler Bataev. The deal was struck despite intense competition from German manufacturers but Bataev was especially looking for a supplier who would not be a competitor in the home market.

The High Focus' product range also accounts for 10% of the British market and RPS is keen to increase supplies from its factory based in Ailly, France.

Focuser

RPS High Focus Weyburn Works, Fyldeholme, LU1 3QL. Tel: 0121 82722.

Commodore/Commodore House The Switchback, Gardner Road, Midhurst, West Sussex BN20 7SD. Tel: 0436 736683.



The RPS/Commodore High Focus Range



The MCS Computer Buffer

Music to your Ears

Students studying for Music Grade Examinations 1-5 can practice for their usual tests with the aid of Aural 1, a musical program from Perfect Fourth Software.

Fastidiously following the wishes of the Associated Board of the Royal Schools of Music, the program is aimed at all serious instrumentalists, or singers, and includes a module which shows how to construct an aural 1 exercise. The program contains 250 tests chosen at random, and eliminates the need to wait the end of a piece in order to help you practice.

Perfect Fourth are taking great pains to underline the fact that this is not just another computer program. It has been designed in and for the need for specific computer skills and the specially commissioned test leader from Trilogic enables an full memory load to take place in just over a minute from tape or 17 seconds from disk.

Focuser

Perfect Fourth Software 17 Elmwood Lane, Forest Hill, Birmingham B37 3YU. Tel: 0471 51171.
Trilogic Unit 3, PNB, New Works Road, Elm Hill, Bradford BD12 3QP. Tel: 0274 881114.

The Missing Link?

The Compact buffer interface from Micro Control Systems offers more than just an RS buffer.

Connecting Commodore machines to non-CRM printers can be a headache but Compact offers all of the necessary hardware to link the Commodore and Commodore and Epson printers. The device is easily installed, made the chosen printer and provides all the necessary connections for linking into the computer's serial port.

Once connected, Compact will convert all of the Commodore's output into standard ASCII format and also allows access to the serial interface of the printer.

The price is £24.99 for the RS, Epson and £34.99 for the Canon. Special reductions are on offer for the 2K buffer unit, and the new prices are £29.99 and £39.99 respectively.

Focuser

Micro Control Systems Division House, Under Street, Southampton, Newmarket, NG16 5BA. Tel: 0603 261204.

DATA STATEMENTS

The Big '90 Reader Offer

At Year Commodore we've fallen victim to our own success. As the number of features and advertisements have increased over the past year, so has the number of pages. Being increased to cope with them. A few avid readers spent Christmas filling away their precious magazines and have pointed out that the Year Commodore leaders no longer take a full year's magazines.

After pondering the problem for a few minutes some bright sparks at our Reader Service Department came up with the perfect answer - make BIGGER leaders! The miracle of the whole scheme is that they'll still be the same price and the same high quality,

but make sure that your order states that you want the 1987/88 size.

As a New Year Goodwill to All Persons move (and to shut the bookies of smaller leaders!) we are pleased to announce a special bargain offer. As long as stocks last we are offering three of the old style leaders for the price of two - after all you can always use them to tastefully camouflage that embarrassing collection of hunting pictures or in an outdoor Florida for retirement, happy! Oh, yeah?

If you want to take advantage of this limited offer, visit your favourite YC BINDER OFFER, contact your dealer or postcard order for £11.90 (for three leaders) made payable to ASP.

List and don't forget your name and address. Send your order to Reader Services at the Touchline address at the end of this news item.

If you want the big leaders mark your envelope 'YC 1987 BINDER' and follow the instructions above remembering that each leader only costs £3.95.

Enjoy but please allow 28 days for delivery.

Touchline

Year Commodore Readers Service P
Mail Stop 96, South Road, Epsom,
West Surrey, Surrey CR8 3EP

Gateway Changes

Readers wishing to contact the Gateway Computer Club should note the new address and please number pages in our Touchline Gateway, has a membership of over 150 computer users and organises events at the High Hope Recreation Centre, RAF Mildenhall, Suffolk on the third Sunday of every month. Specialist groups such as Commodore users have their own meetings at other times during the month.

The current membership fee is £3 per year and entitles you to receive a monthly issue of the 28 page Gateway Gazette. Anyone who requires further information can drop a line to Phil Roberts at the Touchline address.

Gateway Computer Club, 146d
Rushley Road, Lakenheath, Suffolk,
Tel: Epsom 2461

Amiga News

New Amiga software and hardware is appearing daily. The user base over here is still not large enough to support any major British developments but the interest in acquiring British rights for American products is increasing fast.

The Amiga market is still growing and IBM looks like being a good price if only something can be done about the price of the software.

The latest news from America is that the Scribble wordprocessor, Analytical spreadsheet and Organise database have all been combined in a single package called The World's Am

Year Goes to Press

Typical have remained the services of leading sports commentators, David Yates to write the introduction to the booklet which encompasses the Winter Olympics '88 competition.

Yates has been involved with the Winter Olympics for the past 20 years and his BBC programme 'Six Sancies' recently celebrated its 100th anniversary from the Winter Games location in Calgary.

Typical are also bringing a heavy weight to enjoy a holiday for two in the Winter Olympics. All you have to do is buy the game and place in order of importance eight questions which are required of a Real Sporting insider.

The game is available now for the C64, C65/Work and the Amiga.

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David Yates - probably the most qualified commentator at the World

business package that forms an attractive starter kit.

Professional Plus is an upgrade of Publisher 1000 which now includes Postscript laser printer support software and it is currently being sold at a lower price than its predecessor.

For business or leisure presentations, TV Shows from East Group can help the Amiga owner to put together a sophisticated slide show on live video presentation. Over 40 different wipes can be used to place one image out to another in placed in on a timed basis or remote control.

Write & File is the latest

WYSIWIG wordprocessor with an integrated database and merge facility and spell checker. There is a wide range of fonts available in a variety of styles to give a professional look to your documents.

Further information on any of these products can be obtained from Brown-Wagh Publishing in California.

Touchline

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Airborne Ranger

Here's your opportunity to get in a little action and become a Ranger in *Wings of Steel* and win, please.

By Tony Hoffmann



Wings of Steel, 1960, is a two-player, board-and-counter game played on a 20x20 grid and using the *Wings of Steel* set of 100 counters. In *Wings of Steel*, you command a team of paratroopers, gliders, and a transport plane. There are 100 counters, including 100 paratroopers, 100 gliders, and 100 transport planes. The game is played on a 20x20 grid.

The Airborne Ranger game is played on a 20x20 grid. The game is played on a 20x20 grid. The game is played on a 20x20 grid.

The game is played on a 20x20 grid. The game is played on a 20x20 grid. The game is played on a 20x20 grid. The game is played on a 20x20 grid. The game is played on a 20x20 grid.

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scripting. It's a little more complex than the actions of the games where I still can't fully understand what's going on. This is not great, and it's the same with *The 7th Guest* and *Phobia*. And the more complex the more I have to dig through the levels of mystery to figure out what's going on.

There are also a few atmospheric puzzles scattered around the game world, however, and they can be frustrating. The one I like the most is a puzzle involving a door you can't open in any of the rooms. What you have to do is turn on the lights, and when the lights are on, the door opens. The puzzle is not as easy as it sounds, especially if you don't have a flashlight. You have to look around the room carefully. Some are hidden in the walls and in the "T" wall, which is not a very subtle clue.

I think it's safe to say that *The 7th Guest* is the best of the three. It's a very nice, atmospheric game, and it's a good game for a family or a group of friends. It's also a good game for a single player. It's a very nice game, and it's a good game for a family or a group of friends. It's also a good game for a single player.

There are a few more puzzles scattered around the game world, but they are not as complex as the ones in *The 7th Guest*. The one I like the most is a puzzle involving a door you can't open in any of the rooms. What you have to do is turn on the lights, and when the lights are on, the door opens. The puzzle is not as easy as it sounds, especially if you don't have a flashlight. You have to look around the room carefully. Some are hidden in the walls and in the "T" wall, which is not a very subtle clue.



There is also a very interesting game called *The 7th Guest* which is a very nice atmospheric game.

The 7th Guest is a very nice atmospheric game. It's a good game for a family or a group of friends. It's also a good game for a single player. It's a very nice game, and it's a good game for a family or a group of friends. It's also a good game for a single player.



There are a few more puzzles scattered around the game world, but they are not as complex as the ones in *The 7th Guest*. The one I like the most is a puzzle involving a door you can't open in any of the rooms. What you have to do is turn on the lights, and when the lights are on, the door opens. The puzzle is not as easy as it sounds, especially if you don't have a flashlight. You have to look around the room carefully. Some are hidden in the walls and in the "T" wall, which is not a very subtle clue.

Phobia is a very nice atmospheric game. It's a good game for a family or a group of friends. It's also a good game for a single player. It's a very nice game, and it's a good game for a family or a group of friends. It's also a good game for a single player.

Company:
Phobia: Electronic Arts, Napalm, Reservoir, 1, Street
The 7th Guest: The 7th Guest, 1, Street, 1, Street
1, Street, 1, Street, 1, Street, 1, Street

Developer: The 7th Guest, Phobia, Napalm, 1, Street

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Communications Corner

Greetings comms fans! For obvious reasons things start to happen in the comms world at this time of the year so there's plenty of news.

By David Janda

A major acquisition of MicroLink is promised after a £1.50 million deal was signed with Telecom Gold. Derek Martin, managing director of Database Publications which runs the service, told *Telecom Computer*: "We'd been talking about such a deal on and off for the last two years, but only speeded things up when the possibility of the price in mobile data becoming readily for other Gold users became apparent."

In the deal MicroLink gets its own Prime 960 computer which is reputed to be faster than more powerful than the Prime 790 which are used on the rest of Telecom Gold.

Database are not using exactly what new features will be implemented but in a statement to the press Martin said: "The new machine will give us much greater flexibility. It will allow us to provide a much faster service, introduce a variable charging structure to meet the different needs of our users and make possible the introduction of entirely new and exciting features."

With a double, the 912 block character terminal charge has got off to a hot start and existing users of Telecom Gold. Existing users of the MicroLink service will be looking for even greater value for money, and I hope that MicroLink are now in a position to deliver the goods.

Kermit

No, not the little green frog as seen on the Muppets, but a new file transfer protocol created.

Kermit has been around for a few years but has always been regarded by the very popular XMODEM file

transfer method. However it's now being used more and more, first in the UK and public domain versions for all the popular micros are abundant.

Kermit is a multi-line data stream of transferring files from A to B. It consists of a number of commands that allow you to configure your Kermit system in a series of ways. This enables you to transfer any type of file you care to name.

There are two reasons for highlighting Kermit in this column. First it is in the public domain which means that it's free of charge and secondly, networks such as Majordom are starting to use it.

Getting hold of a copy of Kermit for your Commodore machine, be it Amiga or C64 should present no problems. The Independent Commodore Products User Group (ICPUG) can supply members with a copy on disk and I have found a vendor for the C64 on Compact. The "official" distribution centre for Kermit is at Lancaster University.

You can dial up their mainframe and download the HEX files and reconstruct the version on your micro, or send out for a version on disk (look online for details on how to do this).

If you intend to download a version from the University then call the Lancaster mainframe on 8534 9767. Once connected enter 'CALL KERMIT', the password is also KERMIT. At the system prompt 'E' enter 'SELECT C64 or HELP' or " if you need assistance. Entering 'SELECT C64' will log you into the directory for the C64 implementation, you can then use commands like TYPE and DIR to list files and directories.

If all this is a bit daunting don't panic! First download the "DOC" file listed then list or print the file. This will not only give you information on Kermit and how to use it, but what files you should have for your particular implementation - good luck.

As mentioned MicroLink is currently experimenting with Kermit on system 70. I have been using it out for a few months with varying degrees of success. Basically the implementation of MicroLink will enable you to upload/download files by text or binary. You could send a program to a friend who lives in the country, or in another country by using mail which is handy!

FT

Another file transfer system which is being used on Telecom Gold is FT. This is in fact more often than the popular XMODEM file transfer. At present FT is only available to those with corporate accounts although I believe if it proves to be a success then it will be made available to all Gold users - full details next month.

The Net Gets Musical

A new contribution area should be launched on Micronet by the time you read this. Called Music City, it will consist of news and features about computer music. One of the main attractions will be teleloaded/download files for a variety of machines including the C64.

As we are all aware there are

hundreds of it was done in the public domain. All the major owners of popular commercial music from records and films in breaking the copyright law and Microsoft has taken steps to ensure they don't do the same.

"Microsoft has no desire to limit the copyright law," said PR manager David Rosenbaum, "and we have reached agreement with the Mechanical Copyright Protection Society over the matter of computer music files on Microsoft."

What the means is that if a subscriber wishes to submit a music document of a contemporary, then that is not his or her own, then Microsoft will pay a royalty to the MPCS, thus keeping everything above board.

Phil Goodell, Microsoft's software manager in creating subsidiaries from all subscribers, and if the user is good enough you'll get paid for it as well. Certainly the emphasis is on music produced on the BBC radio, because the BBC is the largest group of users on the Net. However, as we are all aware the CB is a far superior medium when it comes to producing digital music, so why not submit your own compositions?

Hayes Gets Cheaper...

Anglo computers who stock the Enterprise range of modems has substituted a new range of HAYES compatible modems for approval.

Called the Enterprise Turbocharge, two models are due for approval real soon. Both models support V.22 (200/300 baud), V.21 (1200/15 and 75/1200 baud) and V.23 half-duplex (1200/1200 baud). In the case of the Enterprise II Turbo V.21 full-duplex (1200/1200 baud) is also supported.

The modems are full Hayes Smartmodem compatible and have a number of features. These include a 60 word a second programmable telephone number dial with auto ID and password facilities auto-dial full S register duplex, and if you are connected to the Mercury network the automatic-dial to send network will be used!

What's also interesting is the price. The Enterprise I Turbo will cost £149.95 (inc VAT) and the Enterprise II Turbo will cost £249.95 (inc VAT).

...And Smaller!

Digital Matrix, based in the West Midlands, is now importing a rather nice device called the Discovery 1200F Hayes compatible modem. Features include pulse and tone dialing, CCITT and Bell inquiry specifications, and V.22/300 as well as 1200/1200 full duplex operation.

What is so special in the size and price? The modem is just a little larger than a pack of 20 upper round pens only 89 (inc VAT)! It should be noted that currently it is not BAST approved but your Commodore understands that the modem will be submitted for approval.

A full review of the Discovery 1200F will appear in a future issue.

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Font Master 128

Could this be the ultimate C 128 wordprocessor?

By Stuart Cooke

It is often forgotten that the C128 is an excellent "work horse" with a wide range of accompanying business/small business software available. In this article we look at the Font Master 128 which takes wordprocessing on this superb computer a step further.

Font Master 128 not only offers all of the normal facilities that you would expect in a good wordprocessor, such as headers, footers, changing layout etc, but also over 40 new character sets. These allow the user to print text in styles ranging from Greek to Arabic.

Program Requirements

You can only use Font Master 128 on an 80 column display. C128 users who only have 40 columns will not be able to use the program. The wordprocessor is supplied on two disks, one of which contains the wordprocessor, other software programs and a few fonts and the other contains extra fonts. If you are lucky enough to have a 1371 disk drive, both single-sided disks can be copied onto one double-sided disk. If it is worth pointing out that the Font Master disks are not protected which allows you to copy the program and place the original disks wherever you like. However, a double floppy disk set (boxed) must be placed in the correct port in order for the program to work.

A setup program is provided so that you can tell the program exactly what type of printer and interface you wish to use with the program. Over 100 different printers are supported together with all of the popular

interfaces. One good feature of this setup program is that it will tell you what variables need to be set on an interface in order for it to work with the program. The setup file also tells you what sort of performance you can expect from your printer when used with the package. Obviously, a printer such as the Commodore IMP401 will not give as high a standard as something like the Star 64-10.

Entering Text

Font Master 128 is just like any other wordprocessor, text is typed in together with certain codes to specify print styles, layout etc. Most commands are entered through a combination of the CONTROL, SHIFT and Commodore keys. A help facility will show you what keys to press to achieve a certain function.

Combinations of the above keys are used to select commands which include:

- A new line
- A new page table (bold, compressed etc)
- Underlining on and off
- Tab character length
- Play more text

One extremely useful function for foreign users is the ability to switch the character set with another or allowing characters with accents to be created. Your printer must support backspacing to make use of this feature.

Formatting

As well as the range of single letter

commands mentioned above, over 90 two letter formatted commands also exist. These commands allow you to select such things as the length of the paper you are using, the size of the margins, printing on specified pages, turning on centring, defining the numbers of headers and footers, printing on columns, inserting graphics in text plus many more.

The options of turning on proportional spacing comes together with a special set of calculation commands that make use of the altered spacing when proportional is on. This is great when you want to produce high quality tables.

Pretty Pictures

You may have realised that the above list of features mentioned graphics. Font Master 128 has the ability to include a picture created from another program within your text. Inserted this way. The picture can either be placed in your document with the text running over it or around it. The facility to reverse the picture or make a negative will also exist. You don't have to use a computer graphics font font - you can tell the program to leave a blank space in a size that you specify, so that you can use a picture which is from another source.

Newspaper Style

Font Master 128 has the ability to

print in columns just like a newspaper. The setting up of the column size is left to the user; the program handles everything else. If you prefer wide lines, the printer will automatically move the paper back to the start of a new column. If your printer doesn't reverse feed then it's up to the user to move the paper to the top of each column.

Input/Output

As you would expect from such a sophisticated package, Font Master 128 offers many input/output facilities. The user can load and save fonts to disk, up to ten fonts can be loaded in memory, being up a disk directory, send disk commands, and manipulate text.

Text manipulation commands include the ability to load and save files in both program format and sequential format. The ability to save and load in sequential format allows you to save text that has been processed by other wordprocessors or database programs. Text files can also be loaded into existing text files and even all text under the whole directory can be saved out.

Mail Lists

The ability to use form files also comes within Font Master 128. As an example of a form file, let's say that you had the name, letter typed to telephone only, only when you had you require on each letter will be the name and address. Both items then you connect up a letter with special codes, including where you want information to go. When you print the letter the special codes are replaced by information from a form file, in our case the form file would contain the names and addresses of the telephone that we were writing our letters to.

Sorting is interesting

Once your document is finished it is time to see exactly what you have done before you instruct your printer to print. A nice preview option allows you to see the document on the screen just as it would appear on paper, reflecting the changes in character size, font, etc.

Foreign Language

Font Master 128 comes compatible with a variety of foreign languages so that your program can be in Greek, Russian or even Arabic. One problem with this is the characters for foreign languages do not always correspond to English keys and the screen display will therefore look rather odd.

Font Master 128 overcomes this problem by allowing you to load a character set into memory. This means the characters that you see on screen will be the same as those on the printer. Font Master 128 is the only wordprocessor I know that has this facility.

Some foreign languages present even greater problems however. These are printed from right to left. Font Master 128 allows you to type it and edit it via backspace.

Other languages are even more complicated in that text is written from right to left and numbers are written from left to right. Font Master 128 also makes provision for this.

Going Further

A variety of programs that are supplementary to the wordprocessor are supplied on the Font Master disk. All of these are accessed from a menu which appears when you boot the disk. I have already mentioned the swap file editor in this article, a graphics converter, font editor and text converter are also provided.

The Graphics Converter allows you to convert a high-res picture or a graphics picture into such a format that they can be used with the wordprocessor. Further, also used to make pictures up from a number of

images taken from graphics.

Should your Master 128 not have a font to suit your requirements, then the Font Creator will solve your problems. The program allows you to design your own fonts for use on the printer and character sets for use on the video screen. The program has a variety of commands for editing fonts including loading saving and dumping the fonts to the printer.

Because most people have access to other wordprocessors, a program exists called the translator. This program allows you to take text from a variety of popular wordprocessors and convert it into the format that it can be loaded by Font Master 128. If your wordprocessor saves text in sequential files, then you will not require this option as the wordprocessor will load sequential files without any problem.

Verdict

Font Master 128 is the most powerful wordprocessor package that I have used. It has all of the facilities that you would expect from any wordprocessor plus many more that you would not have thought to be possible. An important feature worth noting is that you don't have to use the fonts, you can produce printouts on your printer's normal font.

A spelling checker should be available in the near future, which will add that involving touch to the package.

Font Master 128 is the most comprehensive wordprocessor that I have used on the £128 hardware of the day.

This package is an excellent piece of software for £128 users.

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Do you have trouble with tall letters

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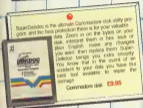
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Amending Commodore 64 Basic

Various avenues can be opened to the Commodore user when commands are added to 64 Basic. Peter Gervard starts us off with simple background and border colour changes.

By Pete Gervard

Ever since the Commodore 64 first appeared (and this, what a long time ago that seems to be) people have marveled and groused about the variety of Basic that it was equipped with. They complained of no procedures, which has always struck me as a rather petty-kitty argument when it takes five hours to search through a twelve page listing in order to find a last line procedure called FIND.

At least with a Commodore 9600 you know where line 9600 is going to be! No structure to the language at all, they would charge, ignoring the all-important fact that if a program runs and works, then it works, whether the code is a thing of beauty or something that exhibits the structural qualities of an antique. Basically is a thanksgiving. No commands by using graphics and sound, they whine, and there they have a very valid point, at last.

There are two commands in the Commodore 64's repertoire for manipulating sound and graphics, and these are POKE and PEEK. Ever PEEK isn't a great deal of help most of the time, since a list of the addresses used to handle these two admirably important features of the 64 are written only. That is, you can POKE things in there but you can't PEEK, to see what you've already got. Write-code

memory, or WOM I suppose, isn't a lot of a resource at times.

Now I'm not preparing wagers to your computer, since the write-code aspect of things can be overcome by judicious use of variables and a little something called logic when you're done and make your programs.

What we can do however is improve the Basic language that Commodore have seen fit to equip us with.

There are many ways of going about this, but on the first article we'll start by taking a look at something that is fairly simple to follow (and implement!) It will give you the opportunity to tuck about and dabble in whatever way, you please, and that leads the way for the greater things that are to come.

Just as you might expect Ed Meyer would be well before he began to run, then to master running before he started hopping about our handle (and you I know he's been hoarse at long last) so you too will have to jump in at the shallow end at first. To begin with what are we looking for from our initial program?

Program Creation

We want to be able to do three things with a new command, and these are:

- 1) Allow Basic to accept a new keyword.

- 2) Allow that keyword to have parameters associated with it.
- 3) Act on the new keyword.

If one or all of these fail as they will, I'll get nowhere, so the first step must be to see how Basic accepts the keywords that it already has, and how we might go about altering things so that it will learn to accept one of our new words as well.

Step One — Character Get Routine

Whenever you type something into your 64, everything is stored in memory as two bytes. It does not as you might think, at first, go into the keyboard buffer. Rather, it is stored somewhere else, and only, clearly if a Basic keyword is recognized, it is taken out as well.

In other words, the character replaces the two letters PRINT in the command or another character might replace the four letters of PEEK, and so on. A little research says there are 168 characters used too for the RETURN key, at which point the Commodore 64 has to try and make some sense out of what you've just typed in. To do this it makes use of a character known as CHARACT, short for CHARACTER GET, and this lives in memory from \$0071 to \$008A, and looks like this:

```

$0071 INC $7A
$0072 INC $07F9
$0073 INC $7B
$0074 LDA $007C
$0075 CMP #57A
$0076 BCS $007A
$0077 CMP #57B
$0078 INC $007C
$0079 INC #100
$007A RTS

```

The part that remains to be done is the option from \$0084 to \$00A0 (entered with the key that lets it word in RAM, not ROM (or WORM) which means that we can alter it but with the aid of an assembler you might not be able to do the following:

```

M 0074
M 0075 INC #70
M 0076
M 0077
M 0078 #A0
M 0079 RTS

```

If, if you prefer a Basic loader

```

10 FOR I=4646 TO 4647 READ
20 POKE I,A NEXT
30 DATA 56,70,66,70,70,66

```

which would do the job equally well. Here we can alter CHARGEIT so that the letter part of it reads like this:

```

$0074 NOP
$0075 NOP
$0076 NOP
$0077 INC $C180
$0078 RTS

```

or again if you like a hole spot at Basic

```

10 FOR I=110 TO 170 READ
20 POKE I,A NEXT
30 DATA 1,214,214,214,214,214

```

Now the machine will do nothing for a while before keeping all to our new machine code information at location \$C100 which as you'll soon simply translate the original code that was stored in the CHARGEIT routine. So what's the point of altering it then? So that we can replace the three NOPs with a call to another subroutine. Before we do that we need learn one or

two other things and CHARGEIT routine when altered is not a happy thing unless the code you put in yourself works perfectly and works perfectly fast too.

Commands and Parameters

You're probably all familiar with various computers connected with a series Commodore 64 Basic. Use of mnemonics (POK, DNG, TMR and TRN with our new interrupt locations, or the use of internal subroutines to accept parameters and acting upon them (LDR, STOR, STA, SCOR, or whatever) is one way was of doing it. I will be referred to know that we're going to see more of this.

When you type something in and CHARGEIT either accepts it as a valid expression within the framework of Basic or doesn't (or does something if it never heard of it and probably, never wants to hear of what you have just typed in, it stores it in memory (in location \$0080 onwards in fact, or decimal 512 if you prefer.) Now you can't check this just using Basic, since the patterns of these locations obviously alter every time you enter a command to see what's on disc, but that is where the information goes. So let's see. Check it using mnemonics if you want.

Say we want to have something known modestly as PETER for our new Basic keyword. To keep things simple we'll just change the background and border colors for now, before we get onto more exotic commands later on in this article. Obviously then we'll need to have the command use two parameters for the two colours in the form PETER A B. To give a context, I sample here about PETER 1 2. The content of location \$0280 onwards if POK'd onto the screen would reveal PETER 1 2 followed by whatever else happened to be in there, from any earlier typing done.

You begin to see my point. The information is stored somewhere in memory, and it's up to us to dig it out and act on it. Let us, first of all, make sure that Basic will recognise our new keyword PETER. When we are convinced of that we've altered with this first, easy, little in getting the 64 to accept new Basic keywords. We know where the parameters are stored if there just because a question of getting them.

New Keywords

You'll have noted that CHARGEIT is already directed to \$C100 and that the little discussion there finishes at location \$C116. Well we'll make use of the space after that to get our new keyword accepted.

To begin with we'll need to store the values currently held in the three machine code "variables" inherent keywords at the X register, the Y register and the accumulator. Then we'll need to look at what is stored at location \$0280 onwards and see if the first five characters correspond to PETER.

Then we can check for the parameters and cause something to happen. This means that we'll have to have a little table stored in memory with our new keyword as it stand when you've added more than one command we'll need to store the length of the new words as well, at least you will if you're going to be using this method. Finally, if the word found from \$0280 onwards is not a new word then we'll have to access to CHARGEIT so let it get on with its job of sorting out the existing Basic. We have worrying stuff on our mind that so, might get up to. The machine code instructions to perform these tasks look something like this:

```

$C107 STA $C0FF
$C108 STA $C0FE
$C109 STA $C0FD
$C110 LDA #000
$C111 LDA #000,X
$C112 INC $C112
$C113 INC $C112
$C114 INC $C112
$C115 CMP #005
$C116 BNE $C122
$C117 CMP #010
$C122 LDA #010
$C123 LDA #010
$C124 LDA #00FE
$C125 LDA #00FD
$C126 RTS

```

In order for this sequence of commands to operate properly we need to have the relevant information stored at location \$C170 onwards so that the instructions at locations \$C117 and \$C115 can compare what has been typed in and stored at \$0280 onwards, with the sequence of values for our new keyword. So at location \$C120 to \$C124 we need the (hexadecimal) values 00 00 00 00 00.

which together make the letters P-E-T-E-R, as it is in the form that they will be stored at \$C100.

Then, we need some code at location \$C140 onwards, so that the program, having checked for the word PETER and found it correct, has something to do to prove to us that the new word has been entered. To keep things simple for now, we might have something like

```
$C140 LDA #001
$C142 STA $0000
$C145 JSR $A474
```

In Basic loader form these two sequences of instructions look like this

```
10 FOR I=49405 TO 49407 READ
A:POKE I,A:NEXT I
20 FOR I=49402 TO 49409 READ
A:POKE I,A:NEXT I
30 DATA
142,235,192,140,204,192,141,233,192
162,0,180,0
130 DATA
2,21,48,189,208,8,219,214,2,208
130 DATA
245,79,64,193,174,255,192,172,234,
192,173,252,192,64
280 DATA
199,191,141,68,84,92,116,164
```

The program works as follows. After showing the values for the A and Y registers and the accumulator, it looks at the value currently held at location \$0000 and compares it with that stored in our table at \$C100. If the two are not equal, it branches out of the check, immediately and runs back to CHARGET to get on with the job at hand. If they are equal, then we loop around to check the value currently held at \$0004 against that at \$C104. Again, if they aren't equal then CHARGET is allowed to get a look-in, but if they are we continue around the loop until we're comparing \$0204 with \$C124.

If those two are equal then the word that has been typed in matches that stored in memory at our new keywords and program control can branch off to the code starting at location \$C140. This new piece of code is in the top left hand corner of the screen, but at least it proves that the command has been recognised. All that remains now is to put some additional code at \$C140 to allow for

parameters, and then to act on these parameters. This is the normal part of all cases we're only altering the background and border colour.

But first, we must inform CHARGET of what's going on, so we'll have to replace those NOPs that we put in earlier with something a little more sensible. Like this

```
$0084 JSR $C107
```

or

```
10 FOR I=132 TO 136 READ
A:POKE I,A:NEXT I
20 DATA 12,67,83
```

Now CHARGET is diverted first of all to \$C107 to check for the new keyword and if it is found that a program operation is carried out and control returned to the normal Basic "ready" mode by use of the normal ROM routine starting at location \$A474. Otherwise, back to CHARGET and the routine that has now been copied into locations \$C100 to \$C104 and the 64 can carry on as normal.

The code at \$C140, allowing for parameter passing and acting on those parameters, looks something like this

```
1 @=0
30 FOR J=49402 TO 49560
15 READ A:POKE I,A:J=J+A
20 NEXT
25 IF R=C>=73096 THEN PRINT
"Data entered incorrectly — please
check":END
30 PRINT "All present and correct —
well done":END
300 DATA
76,215,48,35,272,208,95,142,215,192
300 DATA
348,234,292,148,233,192,162,0,189,0
310 DATA
2,22,48,193,285,2,212,234,2,204
315 DATA
247,36,64,190,174,255,192,172,234,
192
320 DATA
173,239,193,96,239,210,210,210,80,69
325 DATA
84,68,82,208,258,218,215,215,216,220
130 DATA 245,239,255,252,174,0,2
200,32,200
130 DATA 88,173,6,2,141,135,192
371,7,3
340 DATA 281,44,240,74,803,8,141,
32,284,173
```

```
140 DATA 4,2,200,44,203,10,171,9,2
341
150 DATA 129,192,173,40,2,204,0
208,17,171
155 DATA 129,192,140,15,208,10
116,64,13,128
160 DATA 193,40,32,268,175,6,2
141,196,142
165 DATA 173,9,2,202,0,268,0,173,
130,192
170 DATA 141,93,282,12,116,164
803,8,23,140
175 DATA 181,10,250,173
```

You'll notice that we've included the whole code here rather than one bit and piece. That explains the presence of some bits that you've already seen. However, it is a bit messy and a bit confusing to try "type this in" rather than "type into bit" items that merely location to find and alter the bit and changing that to 1. It might mean a shade more typing, but at least you're more certain of getting it working first time!

The command will now accept things like PETER \$12 for a black border and a white background or PETER \$0,10 for a pink border and a pink background (very nice). I freely admit that the checking for the correct parameter is not as robust as it might be and you might care to take a look at that when you're examining the workings of the whole thing. You might also care to add one or two new commands of your own, but remember that 21 commands cannot co-exist with existing keywords so that \$A18141E for example is not allowed since it includes the word CHR, and 14 commands added in the future cannot be tokenised or abbreviated.

In conclusion, this is just one way of adding new commands to the C64's repertoire. Next time we'll look at another way of doing things, which makes it a lot easier to add more than just the command, and which doesn't rely on tedious error checking to get the parameters sorted out.

So, until then, your homework (if it's like the usual window children) is to tidy up that error checking, and perhaps add some commands of your own so that you can gain some familiarity with the workings of CHARGET and indeed the Commodore 64. Me? I'm off to watch some of the Test Match. Bye for now!

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Ackroyd's Saga

Continuing our learning tables feature we take a look at changing the positions of the names and key portions

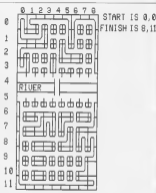
By Allen and Margaret Webb

In the BASIC loader we provided the options to alter the response time and the number of questions you needed to answer. In the first part, we will teach you how to change the positions of the names and key portions and thereby change the page.

As you can see from the map, the play area occupies 88 squares on a 12 by 12 matrix. Each square can have one of four exits open. The player starts on square 6,0 and the exit point is on 8,11. We are using normal coordinates where the first number is the X co-ordinate or the horizontal position. The second number is the Y or vertical position. The 0 signifier is there at the top left hand corner. Try playing the game with the map in front of you and you'll soon get the idea.

The positions of any character held in two tables in the code. First step is altering these values you move north. The BASIC program does all this for you. The editor allows you to load up the relevant block of code (we called it OBJECT 2). You can then rearrange the game to your satisfaction. What you choose the exit option, it allows you to save the modified code.

Although it forms part of a two part game, Ackroyd's Sagas can be played independently. If any of you have any comments on the game please let us know via the magazine.



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Through the Round Window

Do you C64 and 128 owners dream of having access to windows, icons, mice and windows? Now the answer is here in the form of a Window Environment Operating System

By Ronj van Hove and Bart Duchesne

Nowadays when you hear about WIMP (Windows, Icons, Mice and Windows) systems, you think of the machines which spring to mind are the Atari ST, Amiga, Apple IIcX, Apple Mac* and IBM/PC. But what about the 8-bit world?

A few packages for the Apple IIc have been used but never for one Commodore 64 or 128. That was until the magic name of Berkeley Softworks appeared with their introduction of CEOS. It lived up to its name, but also for reasons which you will divine.

Well folks - the answer is now within reach. I proudly present the

WES (Window Environment Operating System) with WEGRAPHIC. It's a form of a Basic extension which will enable you to access the magnificent world of WIMP. And now for the bad news - you'll have to drag the mouse because at the moment it's impossible to incorporate them (hardware reasons).

However, if you're working on an icon extension (with raster interrupts) if you do want mice, check some back issues of Your Commodore for Allen Webb's article on WIMPS.

To see all you need to do is type in almost 88 (17) of machine code - read on!

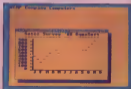
All commands and functions are listed as below. Syntax will destroy anyone who means

Woe! (It's just either program or demo or both fall)

Output: this is screen or window. Description and examples.

The windows fall into three categories:

- * All purpose window (APW). Four of these can be opened up.
- * Static window (SW). Only one window is allowed.
- * Pull down menu (PDM). You can only open one of these at the time.





text but you can define up to eight PDMs.

You can open up to five windows (four APAs plus one SW or PDM). You can use any one DIN mode (e.g. Keyboard mouse, Amiga Mouse and SE Mouse) or use an ordinary joystick. Just stick in port two and W6128 will do the rest.

Starting up WEOS

Use W6128 to format your computer. If you use a Commodore 128 you must go to 64 mode. The following message is printed in green text on a black screen:

```
WEOSBASIC 1.0
WINDOW# 0:MS DOCUMENT
OPERATING SYSTEM 4.0
(C) 1983 BENT VAN HOFFE
(C) 1983 APT LTD
31741 BYTES FREE
```

Below it continue you should see around the following:

- A line working at BASE 4 (mode 0) or BANK 0
- BASIC starts at 57768
- BASIC TRMT STARTS AT 1024
- Screen starts at 50024-50124y(C000-C1E7)
- Character codes at 57944-61474 (C000-FFFF)
- PDM/55W buffers are at 60440-65114 (F000-FFFF)
- PAFW buffers are at 60940-68114 (A000-BFFF)
- File size at 49650-52321 (C000-CBFD)

Next see address FB-FE 247 (F) parameter block one) and VC-7FA (parameter block two) however this is a temporary block because most data is after manipulations finished (parameter block one).

• Character codes 91-154 are defined (also the ASCII codes) in doc128.wor, if you are using string codes on your screen.

• If your basic program has crashed and you press reset or W6128 for strange on your screen but don't worry.

• If you're basic program has crashed and you press reset or W6128 for the second time your screen will contain strange things but don't worry! However your program cannot be recalled with OLD because after a crash the system starts first to BANK 0 and reset the screen reader in 0400-07E2. Your basic program is damaged or when you come back to BANK 3 you can't OLD it again (check your maps, reinitialize before you try.) The WEOSBASIC commands and functions:

CPOS

Syntax: CPOS (X)

Mode: all

Output: window

CPOS reads the cursor position in a window.

When X=0 it reads the current x-position.

When X=1 it reads the current y-position.

When there are no windows on the screen CPOS will return wrong values.

COLOR

Syntax: COLOR (x,color) where x=0-2 and color=0-15

Mode: all

Output: all

Selects the colours where it can be 0 for the border colour.

1 for the background colour.

2 for the foreground colour.

CLS

Syntax: CLS

Mode: all

Output: all

Clears the screen (clears screen in PDMs) (C1000-047E).

CURSOR

Syntax: CURSOR (x,y) where x and y=0-79

Mode: all

Output: all

Moves the cursor at the specified x,y-coordinates in the window.

INVERSE

Syntax: INVERSE (x,y) where x and y=0-79

Mode: all

INVERSE (x,y) will only work above and below 100.

Mode: all

Output: all

This instruction inverts a specified length (x) at a specified position (y) if no length is given the default of 1 is taken.

IF

Syntax: IF condition THEN

IF condition

Mode: all

Output: all

This is an unchanged version of the C64 IF instruction. In the normal case the condition can be followed by GOTO or a THEN. But I decided to change it, the result being that you can put any instruction after the condition e.g. IF X=0,A=2 is the same as IF X=2 then A=2.

IF Z=0 or SIGN(X) PRINT fun/ha' Note: users put a line number after the condition (GOTO).

SCREEN

Syntax: `SCREEN(x,y)(x=0-19 y=0-24)`
 Mode: all
 Output: all
 Returns the screen (PAGE) code of the specified location on screen's window.
 e.g. `IF CURSOR(1) PRINT "A"`
`20 IF SCREEN(1) PRINT "IT WAS 'A'"`

The space for the pointer is predefined and is built as WDCS. WDCS has in fact three predefined spaces: mouse only, the MOVBLK command
 e.g. `POINTER ON POINTER`
`47 1.1 MOVBLK 0.47` And if you move your mouse/pointer, you can move the pointer.

```
47 1.1 MOVBLK 0.47
50 GOTO 25.17
50 1.1 GPRINT "X" MOVBLK 0
50 MOVBLK 0
50 WPRINT "X" MOVBLK 0
MOVBLK 0
50 MOVBLK 0 GOTO 30
```

After you typed it all in, you will see a static window with flashing information. The first two give you the screen co-ordinates and the other two the window co-ordinates. As you will see later, not all things give you a response number (0).

This is quite a handy instruction for multiple choice menus. Use this together with INVDRAW and you'll get a nice professional look. Study our DevKit program for a very good example (Selection of a file).

PAUSE

Syntax: `PAUSE(x)(x=0-150)`
 Mode: all
 Output: all
 Pauses the program x times (1 uses pause 5/14-100)
 If x=0 it waits for a keypress.
 e.g. `30 PRINT "Hi a key" PAUSE 1`
`30 PRINT "QUICK KEY!" PAUSE 1`
`30 PRINT "STRANGERS IN THE NIGHT" PAUSE 150`

MOVBLK

Syntax: `MOVBLK source destination(block 0-255)`
 Mode: all
 Output: all
 As mentioned earlier, the system has three predefined spaces but you can add custom spaces of your own which will be always on WDCS if not set, or load it again. The first para refers to the system operators, the second refers to the destination pointer (you can only use 0-47 since 48-63 are in the current area and 64-255 are beyond NORMAL and the 150 above). The following spaces are incorporated:
 0 pointer
 1 bank 1
 2 bank 2
 19 free use
 To define system space 14 (PINK) on your disk from BASIC. Each space must contain 64 bytes as usual. Now, save some new version of WDCS on a separate disk or cassette.
 e.g. `bank 0 pointer`

OLD

Syntax: `OLD`
 Mode: direct
 Output: all
 Execute basic's file command

WDCS

Syntax: `WDCS(x)(x=1-10)`
 Mode: program
 Output: all
 Because the complex structure of this statement I could not find a logical name. It simply does so much. WDCS works in conjunction with the pointer.

BUTTON

Syntax: `x=BUTTON`
 Mode: all
 Output: all
 button: the trigger of any stick on the left hand of your screen. When someone's press the button it will return a 0 reference if will return a 1
 e.g. `10 IF BUTTON=1 PRINT "FIRE FIRE" GOTO 10`

DIR

Syntax: `DIR`
 Mode: all
 Output: screen
 Display the directory of disk. Follows 0 on the screen.

When x=1: Each time WDCS:DIR performs this instruction it scans the whole screen for special symbols of any character and a whole array of information on the system is then updated (which you can read later by the numbers function provided in the screen).

DIRSK

Syntax: `DIRSK(x)(x=0-32)`
 Mode: program only
 Output: screen only
 This is a rather unusual command. It performs a total maintenance of your computer for a desktop application. i.e. the screen will be filled up with the specified code (1) (mode x=0), because this is the disk pointer and the upper part of the screen will be cleared and filled up with the PDS4 header. All opened windows will be removed.

MORUSE

Syntax: `x=MOUSE`
`y=MOUSE(1) p`
`x=MOUSE(1) p`
 Mode: all
 Output: all
 MORUSE returns the direction of the current movement of the joystick's mouse (x=FEEDBACK/201A/ND/170/MOUSE) p) where p=0 or 1. Returns the position of the pointer in a WINDOW (x=0-19 y=0-24)
`MORUSE(p)=0-1` same as above but now position on the screen.
 p=2-3 returns x and y acceleration.
 p=4 return pointer colour.
 Try the
`10 POINTER ON POINTER`

When x=2: It does exactly the same as above but now it also scans for menu headings at the upper row (DIRSK) and is executed first otherwise it has no effect. If the pointer points to a menu header and you press the button the header will be removed and the menu is pulled down. The system will now wait until you have selected an option and then return to BASIC. However, if you go to another heading the current menu will pop up and the system will return to BASIC. e.g.
`10 DIRSK 04`
`20 POINTER 47 1.1 POINTER ON MOVBLK 0.47`
`30 WOPEN 1.2 10 10 WDCS (PMD) 1`
`40 WDCS 1 GOTO 40`

POINTER

Syntax: `POINTER ON`
`POINTER OFF`
`POINTER (p)(x,y)(x,y)`
 Mode: all
 Output: all
 Pointer instructs the pointer (point the screen pointer) (means info about pointers) to your COM reference board and so is the colour. The first two para are optional. The first specifies the x acceleration and the second (x) the y acceleration (both between 0-4).

Bar of An APW will appear on your desk, and a pointer, when you move the pointer to one of the special symbols (the two symbols at both edges of the window) press the button and you will see it will be activated! To point for the second time to the same special symbol again - you will notice that it won't be covered back. The reason being that the system means that after you have positioned a symbol it has to execute a user-defined part of program that has to move it again so that it is back to normal! Well that's not so difficult, you simply replace them with the normal code (that list of symbols is listed in table 1).

STATUS RUN

Mode: all

Output: all

The RUN data exactly the same as the normal RUN command but no changes will appear. The result is that the normal RUN/ok will set the status as the mouse changed RUN to the new value in 2/8 characters, followed by 1. The first code is generated by the WEDBASIC as this is the sign for an extended instruction! This also means that if you old programs contain any old Run statements, you have to change those statements after you loaded your program in WEDBASIC.

WINDOWS

System: WINDOW(wall)

Mode: all

Output: all

The function only works in conjunction with WOPEN, WCLOSE, WSMAP, WMOVE and with any other window command but can be 0 - WINDOW will create the current window, no - close window on screen.

1.4 APW window no

1 SW

APWM

- 1 - window window x y position
- 2 - window window x y position
- 3 - length of window
- 4 - length of window
- 5 - shadow flag

NB when there is no window is active in the menu will return a degree error (-1), except the WINDOW(0) which will return a null(0). We use the command to run desktop program for moving and copying windows.

DISK

System: DISK

DISK a

Mode: all

Output: screen only

DISK displays the disk status of your disk - know again why the real led is following!

DISK a reads a disk command to device 0 drive 0 or 1. When no disk drive is connected to your C64 the system will ignore the command and continue with the rest of the program. NB when you want to read the disk status and you have no disk drive the system will hang up (RUN/STOP/RENTOR). This instruction will not work correctly with all disk drives.

WCLOSE

System: WCLOSE

Mode: all

Output: all

The statements will close the current APW when no window appears on screen nothing will happen if there are more windows on your screen, the last opened will be closed. The two special symbols on both edges of the window will be placed on the previous window and the next screen command will work on that window (e.g. WPRINT or CLS). When there is another type of window on the screen (e.g. a text window) it will create an

error (e.g.

```
10 WOPEN 1,1,20,16,"WEDB"
WOPEN 0,1,1,1,"KEY"
30 PAUSE 0 WCLOSE PAUSE
0 WCLOSE
```

WCLOSE

System: WCLOSE

Mode: all

Output: all

Clicks a 'W' when 'W' is present on the screen no error will be given. If there is still an APW window on your screen it will be activated after closing the SW (you can see this by the two symbols appearing on the window).

10 WOPEN 12,0 PAUSE 0 WCLOSE

WPRINT

System: WPRINT (WPRINT does the same)

Mode: all

Output: window (APW & SW)

Almost the same as BASIC's 2 print instruction. You can use both SPC and

TAB function, as well as other characters such as " or ' or BASIC variables, e.g.

```
WOPEN 1,1,10,10,"DEMO FOUR"
followed by WPRINT "Y THE BEST"
WPRINT "WHO said?"
"NO" WPRINT "AN?"
MIN 11
SPC(10)
```

When the window is full it scrolls everything up. Of course a window must be opened first.

MENU

System: MENU (on ON)

Menu: OFF

MENU (on) stop of status (and) will

show

0=MENU (x)

Mode: program

Output: all

Probably one of the most powerful commands of WEDBASIC - MENU (on) (on=1-8) opens a menu with the options. When the specified menu is not yet defined an error message will be printed. When you (x) to open a menu and the DEBK command is not yet performed your menu will be opened at position 0, x.

10 MENU 1,1,2,2,"DEMO OPT1

OPT1 "

30 MENU 2,1,2,2,"DEMO OPTA

OPTA "

40 CLS MENU 1 ON PAUSE

0 MENU 1 ON

When you run it a menu will appear on the screen however without the "header" DEMO and when you press for the menu will disappear and another menu will appear, again without a "header". Also the second menu is pulled down where the first one was pulled down. You can understand that this is certainly not a professional way to use pull down menus. Delete line 40 and add the one 30 DEMO 0 MENU 1 ON PAUSE 0 MENU OPT MENU 1 ON

Run it! You will notice that everything is slightly more the headings will appear also centered.

MENU OFF operates just like WCLOSE or SCLOSE, the menu will be popped up and if there is an APW on the screen it will be activated (the two symbols you know!). If a menu

a status, expanded and then try to pull a menu down an error message will be printed.

MENU is the third variation of MENU given you the possibility to define a menu. The difference is always in program mode.

```

row menu no (1-8)
cl length of menu window (4-40)
op number of options (1-28)
sp spacing flag (0 for no, 1 for yes)
menu controls the menu options
data
ca colour of menu text (0-15)
wr window colour
sh shadow flag (0=no, 1=yes)
sc shadow colour
    
```

Well well that is also of importance! The first part is the menu which must be defined. If the row is out of range a dreadful MENU SYNTAX error is printed. When you define it the row data will override the defaults. The next part defines the number of options. 'sp' is the space flag, when you set yes the maximum allowed options is divided by 2 (so the maximum is 20 but 10 options).

The difference between these variations is shown by the next demo.

The difference between those variations is shown by the next demo. Delete lines 20 and 30 of above and modify 10 by:

```

10 MENU 1 10 24 DEMO OPT1
OPT2
30 DEMO 94 MENU 1 ON PAUSE 0
    
```

You will see that the options are directly printed under each other. When you change the 0 in line 10 to 1 and RUN it again you will see that there is a space between the options.

The following part is the most important, this contains all menu text data which must be printed on the menu. The very first name is the menu heading which is followed by a left arrow (then indicates the end of the first entry and is always followed by the name of the first option and space followed by a left arrow. Use a left arrow after each name and if you have finished your string it is an up arrow. The previous demo illustrates the use of the string DO NOT USE CONTROL CODES IN THIS

STRING! Remember to add in each option in your string as there is specified by the 'top part'.

The next parts are optional and indicates the colour of the menu text but not of the header! The next one is the colour of the window, then comes the shadow flag. When this is set to 1 a shadow will be added to the menu. You have a choice when it comes to specifying the shadow colour. It is interesting that when you type a colour directly after another the system will use default values e.g.

```

MENU 1 20 24 0 2 (just colour is red)
MENU 1 1 3 10 0 0 0 0 (red colour is blue, and window is green)
MENU 1 1 2 5 1 0 0 0 (left as above but with a shadow)
MENU 7 1 1 2 0 0 0 0 (3 1 2 Green for text, foreground colour for window and red for shadow)
MENU 1 1 4 2 0 0 0 0 0 (4 2 0 0 0 blue for text, foreground colour for window and no shadow)
but this is wrong: MENU 1 4 2 1 0 0 0 0 0 (no shadow - the default for the shadow flag is no shadow, so you can't define a shadow colour)
    
```

To be continued

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The ICPUG Column

The latest news from the country's biggest Commodore user group.

user group.

By Tim Annot

Lately I have about you lot, but I speak, regarding the PCW show. Not because there was a lot to say — there wasn't. But rather because it was an opportunity to meet people and talk to them.

The first impression was one has of the PCW show is to see the 15,000 spanning both Olympia 2 and the National Hall. It took me three days to see the whole show during its off-peak periods from the ICPUG stand, and I was disappointed even now that I was all that was to see.

Having looked around there was nothing on display that was new or really exciting. I shall now qualify that. There were two stands that were worth visiting because their products are I feel significant. The first stand was Mike's, in an obscure corner of the business section they had an excellent cheap 16 monitor (1900) running a programme card, which using a Motorola 68000 EGA monitor. Now transputers are one technology where Britain leads the world but it is slow news as their health, the Americans will take over that lead. However, that 20 inch monitor I could really use.

The second stand that impressed me (and I don't know if I should say that as a Commodore manager) was the Acorn stand. Archimedes uses the same basic RISC technology as the transputer and is also a half shift. However I think Acorn is better. At

the end of the day what counts is how far out of the door and Acorn certainly have the marketing power to compete in the global marketplace.

Back now with the "good news" Commodore had a "village" in what was formerly the National Hall restaurant. It was a nice peaceful affair tucked away in a little backwater. I guess people can't help comparing it with Atari's world" missing the vast difference in size, vendors and popularity. I reckon Commodore need to get out of their "village mentality". It takes more than a village and a football team to compete the world.

Speaking of football I guess everyone knows that Commodore have spent 50 million in sponsoring Chelsea. During the show, invited guests were treated for a tour of the ground and a pep talk by the month's CRM top management. While being "pepped" I spoke to Mike Hamilton, Commodore's Technical Support Manager. The new 16 inch PC 16 is a series, an Amiga 4200S. It will be based on its side with a display adapter ports keyboard and disk drive built in. Further expansion possibilities are opened up by the fact that the disk expansion module is the same as the Amiga disk socket. While no expansion slots as such, there is an "expansion connector" that links comfortably into the main version of a slot. So all you need is a gender bender

Unfortunately, Mike was unable to confirm this suggestion at the time.

Commodore raised a fund for a wide range of brochures that were not generally available to the public. The £2000 brochure was their pride and joy, and was an impressive letter of all Commodore and their dream of the £2000 was by Commodore's new flagship but the beloved C16 is possible to see about. When asked the Commodore reps just changed the subject. I hope it was partly copyright because I'd hate to see the C16 dropped.

As I'm about out of space I would just mention, for me to think, on behalf of the exhibition organisers, all those volunteers who helped on the ICPUG stand, and everybody who turned up or otherwise contributed towards making PCW a very enjoyable event.

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Ultra Function Keys

*Use the function keys to store seven screens of
instructions without hitting your Basic memory!*

By Geoff Hackworth

Commodore blessed the C64 with eight function keys, but in their unlit condition, they totally defied to include any support system. My program provides such a system which allows you to store data which can be recalled to the screen in full. Before you say that you've seen all this before, look at the use of the program and you'll realize that it is no ordinary function key utility.

Most programs will only allow you to produce a string of about eight characters. With this program you can store up to 998 characters as each of the first seven keys the F1 key being reserved for the UFK Editor. The Editor allows you to 'program' the other keys and store a 117 character description of the task stored on each of them.

The Editor is very simple to use and it was similar to the screen editor built into the C64's operating system. Most characters may be stored by the Editor except for the colon and RYS-ON or OFF symbols. There are also some special symbols for use within the stored data which perform specific tasks.

All the information stored on the keys may be saved and recalled by two simple SYS commands.

Storing 1166 of information may seem a bit memory consuming but the machine code and variables are stored from 49152 to 55100 and the descriptions are stored under

the Basic ROM. This means that normal Basic memory is still available for developing your own programs.

Getting it in

The program is presented in the form of a Basic loader which simply has to be typed in saved and then run. Apart from the four Commodore checkmarks, the program consists of two data blocks which will indicate any line on which an error has occurred. If you find any errors correct them and then save the program again.

So that you don't have to use the Basic loader every time you want to use the UFK, again you may use a small save routine within the program itself. SYS52889 "ULTRA" L1 for cassette (L1 for disk) will do this for you. To restore the normal LOAD "ULTRA" L1 (or L2) command followed by %RYS after loading has been completed.

Using the Program

To utilize UFK, type SYS49152 and press RETURN. The screen will change colour clear and then ask if you want to clear the data in the function key and description areas. At this time the memory just contains garbage to the correct response is 'N'. The original screen display will return and a message indicating that UFK is now operative. Every time UFK is called a status the current screen display

under the Kernel ROM and a space is back again when you exit from UFK.

Once in UFK, you can start to program the keys. Pressing F1 will call up the Editor. Select the key which you want to program (F1-F7) or later you can press F1 again if you want to view any descriptions which you have already defined.

For now press F1 and the screen will clear except for a numeric field full stop beneath the cursor at the top, left-hand corner of the screen. This full stop is the end marker which is always used to indicate the end of a definition. Even when there is nothing defined for a particular key, this symbol should be present.

Start at the current cursor position you can now start to type in your new definitions but remember that the last two spaces on the screen cannot be used. One space will be needed for the end of definition marker (the reverse tall-stroke) and one space to prevent the screen from scrolling up and losing the data on the top line or two. This is a necessary compromise to avoid having to use a sophisticated (and much larger) screen editor program.

Now you can try a simple demonstration of the Editor's capabilities. With the cursor in its home position, type PRINT "A TEST" and press the RETURN key. It is normal for you would expect this to result in the screen printing

Table 1

Reversed Character	Function within definition	Called by pressing
'	Input request	0
!	End marker	02
£	Await key press	03
D	Delete character	04
S	Home cursor	05
*	Clear screen	06
+	Return	RETURN
-	Shifted return	SHIFT/ RETURN

A TEST puts the screen in Editor mode; this doesn't happen, the cursor simply prints a reversed 'less than' symbol as though it were just another character. Now type PRINT *P\$ and press RETURN again. This should appear on the same line as the last command.

This is as far as the current definition will go but, as you can see, a lot more information can be stored on the screen, even more than can be stored on a normal C64 screen.

To end the definition a full stop must be placed after the last return symbol. Press 0 and you'll see this happen and then press 0 to quit the editor. The old screen will be restored and everything looks normal until you press the 0 key. When you do the words PRINT "A TEST" appear and, instead of the symbol appearing, the return is executed and the words A TEST appear as if you'd pressed return normally and the READY prompt underwrites them. Before the flashing cursor appears the words PRINT *P\$ then appear under the result 20 followed by the normal READY prompt.

The rule here you don't have to end a definition with the reversed full stop as when the definition ends all 998 characters on the screen. In this case leaving the Editor with the 0 key will automatically place the symbol at the end of the definition.

There are several other embedded commands and how they can be used within a definition are summarized in Table 1. All of them are reverse field characters so from now on they will be referred to without reference to their reversed-out nature.

Inside the Editor, the CLR and HOME keys work as normal and will clear a written screen or an unwanted function key definition or return the cursor to the top left-hand corner of the screen. Within a definition you may want to clear the screen or home the cursor for a special purpose so to facilitate this, there is a special character for each purpose. The S or home command is obtained by pressing 05 and the least symbol is held on 06.

Before these commands are executed you'd probably want to halt the function key output so the " and ' have been added to allow user input or await a key press.

The question mark is a very powerful feature which allows the user to INPUT fresh data. This allows the user to type in up to 31 characters in length. When the definition pointer reaches this symbol, the computer pauses and awaits user input. One use for this is to enter a test output such as the word LOAD followed by the question mark, another set of question marks and the return symbol. In operation the program will wait for an input after printing LOAD?, it will wait for a blankline to be typed as from the keyboard and you press return. The end quotes will then appear and the LOAD command executed. The quotes could also be followed by P for a disk command or L for a machine code tape load. If you do load a machine code program make sure that it doesn't use the same memory area as the Editor!

Once an input string has been defined it is stored for use the next

time. When the definition pointer for input the last input can be repeated by holding down the shift key and pressing RETURN. If you don't want to input anything at any time use the delete key to erase to the beginning of the input line and press RETURN. If this means that a syntax error will occur an error message will appear on the screen but the execution of the 0-key definition will continue.

Sometimes syntax errors will occur within a definition due to programming errors. If this happens at any time the function key pointer can be halted by pressing RUN/STOP. The computer responds by printing "*** ABORTED ***" and halting execution.

The £ symbol means that the computer will wait for any key to be pressed before continuing. So a command such as POINT "A TEST" has the £ symbol before the return; the command will not be executed until a key is pressed. The header also flashes as a visual indication that a key press is required.

If the symbol follows a return symbol a space must separate the two commands. This means that a space will be printed which cannot be desirable. It is easily avoided by placing a delete symbol D after the £.

Some definitions may not fill a line and may not be direct computer commands. For example, you may want to include game instructions on the 0 key. Normally the text would have to be padded out with spaces to make it fit the screen. This is wasteful of memory so I have included a special RETURN symbol. When this is used it operates as it would in normal operation, namely, everything on the line is ignored by the operating system and no syntax error occurs.

One extra use for the UKF program is to use it as a pre-loader for a program of your own. Test routines and commands can be stored on the keys and the procedure would be to use the 0 key to load the program, the 0 key to run it and all of the instructions for that can hold the instructions. At the end of the game or when the function keys can be used by the user to re-load the instructions and run the program again.

The key definition information you need like a RIM statement is flow. The function of each key can be recognized in BIT characters, so that you can check to see what the key is programmed to do. If you then do, use the particular set of definitions for some time after you tested them, then you can usually refer to see what was their original purpose.

The definitions can be viewed by pressing B to enter the Editor and pressing a space key can have another space to make - press any other function key to read its description or press B again to view all of the definitions in relation. Whenever you view a description you are asked if you want to edit it. If you press 'N' the next description will be revealed or you will return to the Editor if you

press 'Y' nothing was printed in the same way as editing the data stored on the function keys. The only difference is that the SWR ON and OFF symbols are functional.

After entering the new definition you can press RETURN to return to direct mode or move on to the next definition.

Table 1 contains some of the SWR calls which may be used in preparing definitions. For example, SYS49161 could be used as part of a definition where there is a danger of an illegal entry being entered!

Imagine that a definition has a calculation where an attempt may be made to divide a number by zero. This is an illegal function or inclusion of a key similar to IF C=0 THEN PRINT "DIVISION BY ZERO ERROR" SYS 49161. The new line of code a program would be PRINT C/100. If an error occurs the function will abort before the division is made.

The UKF Demo program demonstrates key definitions and descriptions which will help you to produce your own UKF Editor.

Table 1

SWR Command	Function
SYS49152	Initiate UKF
SYS49159	Call the Editor
SYS49161	Abandon data Output
SYS49166	Wait for key press
SYS49167 "Filename" (device number),L	Save key definitions
SYS49170 "Filename" (device number),L	Load key definitions

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500	500	500	500	500	500	500	500	500	500
600	600	600	600	600	600	600	600	600	600
700	700	700	700	700	700	700	700	700	700
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Games Reviews

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HYPERJOB

In the evergreen market, blobz are somewhere between Lord United supporters and games reviewers. It's almost like the reverberations they got enticed to their summer holiday just like anyone else. Was your holiday too late to be that it is up to you to look after them.

After carefully scanning the glossy brochures you check that Cakes is the place to take them - 180 terrace-paved walk squares. What you sense there though you find to your dismay that the brochures may have been a ruse by the same people who advertise Spanish hotels. Nothing is quite finished.

As a trade mentioned, blobz enjoy the simple pleasures of life. All they want to do is however gently float the little hand cube at the centre to the right. All you have to do is to make sure that there are no holes in their to bounce down and no obstacles blocking their path. This is done by picking up and repositioning the paving blocks. Up to four can be carried at any given time and all that remains is to rebuild the path within the given time limit.

This is an original game that requires quick thought and quick action. The screens get progressively harder but there's still time for you to see that it's not a really going to appeal to you. **10/10**

Thunderforce

Title: *Thunderforce* **Supplier:** *Frontier* **For a Price:** *£49.95*
Dated: *Spring* **Location:** *MS-DOS* **Ref:** *FRONTIER/MS-DOS* **Machine:** *MS-DOS* **Price:** *£49.95*

Developer: *MS-DOS Graphics* **MS-DOS Playability:** *10/10* **Value:** *9/10*

THUNDERFORCE



Oh dear! It's so terrible to recall all the times I've been buying the digital world and being the wrong type of words. And that's how it's all over. I've got a reputation for being the "stupid" one in my family, but even so, there were still a few of us who were left standing here (and I have).

For anyone still making the review, the situation got something like this: You and your partner have discovered some (and) information about some underground chemical factories. Your discovery was not without peril though and you were captured by the bands who were running the illegal concern.



Impressed at the Bot's speed, your ship disappears, but has managed to escape. From now on, this is a much closer and more tense battle. To escape, by running the gauntlet past some guards, both human and alien as well as some death squads. To start with, you'll find only your jet fuel and your pistols, being of 1970's vintage, do not seem to shoot you but simply to tickle. As you progress through the levels, you get the choice to pick up various weapons which have been carefully left lying around. A gun, third scope, full and automatic, four missiles, naturally have to be made within a given time, and then again you have various skills.

Graphically, the game is OK but not so good as the plot, which is the only unusual feature in that it isn't set in outer space. The 3-Come-on-Heroism. You can do better than that. — G.R.H.



Mechanix (C&A) Price: £1.99

Originality: 1/10 **Graphics:** 5/10 **Playability:** 5/10 **Value:** 1/10

Traveller

Title: Traveller (C&A) **Supplier:** Mosaic Computer, 5811 Wilson Road, Dallas, Texas 75223 **Price:** £1.99

Originality: 1/10 **Graphics:** 1/10 **Playability:** 5/10 **Value:** 1/10

TALLADEGA

Stock car racing is the name of the game, in this title, rendered by Richard Peitz, son of America's leading experts of the air.

Choosing from either the standard or a track, you randomly constructed one. Your first task is to qualify for the race itself. Controls are a fairly standard left-right accelerator and brake and there is also a turbo boost which can only be used when you are at full speed although even it is somewhat heavy on the petrol supplies.

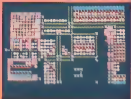
What is unusual for a racing game is that one crashed that's it. You finish the race. An accident was too deep or putting your fuel down and bouncing off your rivals. A feature of certain other racing games. You are allowed to change your rivals (after it's out of the way, however). Other factors that you have to keep your eye open for are engine failure, fuel levels, and low fuel. Any of these reasons is not into the pit. You don't have to do anything other than apart from indicate what you want repaired and watch the clock tick by.

Despite some jerky scrolling, Talladega proved to be highly playable and an under two pounds is not going to break the bank. — G.R.H.

Traveller

Title: Traveller **Supplier:** Top Fun, 111 E. Chicago Ave, Springfield, Illinois, 62767 **Price:** £1.99

SPACE



After an eye-glaring, heavily edited video game, there are the pictures selected for display, the attention is definitely altered space, featuring the cell, and as luck would have it, the only supplies, 10 minutes in, no holders show the front.

Space is a limited edition, most much as it is a top-down view of each game with game is on checking out space, a list as the work. There are a number of hidden or cut-scenes which must be collected before progressing. Other items include extra things, supplies, and temporary an alternative picture.

The space, and you also are contained by a series of classical barriers which, although impractical, can be worked out. The barriers can also be defined by shapes, if some two was narrow. This is all well and good but is frustrating when the first few, business, games you need to spend all this and get stuck in pure blasting.

Space is a highly enjoyable budget game, ideal for a quick hit-on-the-thumb and should you manage to see

sponsorship cash. If you spend money on training you may win more races and get more sponsorship but if you crash or hit the side of the run and damage the bob the sponsor falls could bankrupt you and end your quest for gold. **TH**

Teacher

Title *Bobleigh Sleigher* **Digital** *Interstate's* **Wardrobe** *Trade Center* **Washington Rd** **Cambridge** **SAVOY GC 22** **Ref** 8276 016044 **Machine** C64 **Price** £29.95

Originality 3/10 **Playability** 7/10 **Graphics** 4/10 **Value** 2/10

BASIL THE GREAT MOUSE DETECTIVE



The name is 221B Baker Street. In the basement with Basil the greatest mouse detective in all of Marseilles. Unfortunately, his latest case has led to the kidnapping of his friend Dr Dawson who is now in the evil clutches of Professor Ratigan.

To rescue your chummy friend (and incidentally solve the case) you must track down the evil Professor by collecting clues that will lead from the shops and docks of London through London's sewers and into Ratigan's den.

These clues are found in neatly packed cylindrical containers that are spread throughout the hidden and complex of the game's scenes. However, the可恶 Ratigan has tricked in eight more containers complete with false clues. Therefore, whenever you have collected something you must prove the 'lies' which will tell how many correct clues you have. If you haven't got five it's up to you to find out which ones are the real horrors.

In addition to the clues you can also find a map to stop up your energy, which is lost by contact with Ratigan's monsters and mounds of cheese that can be dropped by him (these are the

TH

Teacher

Title *Basil The Great Mouse Detective* **Supplier** *Graphic* **Graphic** *Alpha House* **70** **Levent** **Amey** **24** **North** **W 22** **Ref** 8742 71423 **Machine** C64 **Price** £9.99

Originality 6/10 **Playability** 8/10 **Graphics** 4/10 **Value** 6/10

RADIUS

The Radius is the most important helicopter transport route the side of the Snowdonia Ribs and it's been taken over by aliens. Now you the bravest, fastest and toughest pilot in the Universe must get it back by taking on the alien in your Ropyr Class Helmer Killer Fighter.

The Radius looks like any other backdrop for this type of standard shoot 'em up with alien attacking in a series of scenarios, attack waves from those that come to you in a race to blast straight line formations to a guaranteed life losing (over) assault.

The result of all that is an extremely fast but unimagingly difficult game to play but, all it has lost in the game also contains a puzzle game that you can play while waiting and a sub game that's better than the main game. **TH**

Teacher

Title *Radius* **Supplier** *Flowers* **Merrion** **Water** **Colfax** **2nd** **Edinburgh** **W 6** **7/11** **Machine** C64 **Price** £9.99

Originality 4/10 **Playability** 6/10 **Graphics** 7/10 **Value** 4/10

ZIG ZAG

Zig Zag is a 3D four way, diagonal, walking game in which you play a mouse who pilot after more than the average one, the Master of Zig! The maze was created to find the ultimate war pilot and although countless hopefuls had tried, none have succeeded in collecting the Eight Crystals of Zig. Now it's your turn.

The maze consists of 1488 3D screens through which you step most 16, and light all the constant sunlight from the attacking mice above. Your ship flies along just above the floor of the maze and just only turn around corners by colliding with pyramids that then deflect the ship in a new direction. If you hit a wall you just become straight back.

To get around the maze you will have to trigger a series of variables by flying over them or shooting them with your laser that adds one points so you can turn around one corner.

You can improve your chances further by gathering credits for every alien you blast. These can then be cashed in at the shop for useful objects such as missiles, shields, invulnerable zones, maps of the maze and warp tunnels. Pick the right objects and use them well and you may live long enough to reach the centre that allows you to enter a game room part of the way through the game, (extra-red rooms) that screen, blasted out until you have an extra red system for your ship and tunnels that must be passed before they close and seal you in forever.

The result is a game that requires a combination of shoot 'em up mapping and arcade adventures skills. Finally, when it you're going to stop the game start at the bottom right hand corner and get a 310 page of paper! **TH**

Teacher

Title *Zig Zag* **Supplier** *Microcosm* **Alpha** **House** **70** **7** **Shore** **Lane** **London** **EC4P** **4th** **Ref** 861-77 661 **Machine** C64 **Price** £9.95 **Ref** 222 95 **Ref** 1

Originality 7/10 **Playability** 7/10 **Graphics** 7/10 **Value** 8/10



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Relative File Programming

Learn the correct method of using relative files by following our series. We kick off with relative versus sequential files.

By Eric Ramsay

There is alot of mystique surrounding relative filing on the Commodore range of computers which is quite unjustified. Quite a programmer has built up a library of programs, relative filing is only slightly more difficult than the sequential storage method but it is far more powerful, much more flexible and simpler in data retrieval.

As a challenge I began relative file programming on the Commodore 64 and have several programs which run very efficiently. Of course, with the new BASIC 7 of the Commodore 128, relative file programming is much easier.

In the first of articles, I hope to show you that when storing large amounts of information you should think automatically of relative files rather than the sequential method. I shall include pure routines necessary to set-up read, write, seek, search and

even delete from relative files of your own.

Let us look at the two ways of storing the data and compare them.

Sequential Files

If you have used BASIC as all on your Commodore you will probably be familiar with sequential files. In fact a LIST is a Sequential File of a BASIC program stored on a disk or a tape cassette. If you have only a database, the only means of databasing available to you is a sequential file, but hang on to that article you will surely have a disk-drive before long!

Storing the program data from a database is one of the most important questions to consider as the writer, but the question is, which to use? Let us look at the sequential file. Normally used either on tape or disk drive, the

type of file stores the information FIELD by FIELD one after another continuously until the end of the File. Normally, the information necessary to collect the data back from the File, given first, is:

Name of FILE
Number of FIELDS
Number of RECORDS

These variables are followed by the file data, one after another. The program would read the essential information, number of RECORDS and Number of FIELDS and then in a nested LOOP to read the data had into string arrays, send the computer memory. This method is a simple but efficient method of storing the information contained in a database.

Then why not use it? For a small DATABASE of course this method is quite satisfactory. However the more data storage is as complex, the data is stored sequentially on the medium

(offer tape or disk) and otherwise must be read from beginning to end.

It is not possible to go immediately to RECORD number 1179, for instance, you must read through all the data and number 1179 is marked and then we're there. Suppose there are 3000 RECORDS? The time taken to access a particular RECORD would be enormous, particularly if something like you have just the database then you are stuck with this method.

In order to avoid constantly reading through the data, most sequential files read all the data into the RAM of the computer once at the beginning of the program, and then read the updated data back into storage right at the end of the program. This is well effective and simple so what are the problems?

The limitations of sequential files can be broken down into the following:

File size - since all of the data has to be read into memory to reside in the computer while the program is running, then the size of the file is limited to the RAM of the computer, which is expensive; of memory and can affect the processing speed and 'Garbage Collection' considerably.

Efficiency - all of the RECORDS are accessed on the storage medium as one lump, as it were, and cannot be accessed flexibly unless it is tape. This means that the RECORD DATA must be kept in RAM.

Flexibility - while the program is running all the new RECORDS and the updates are in RAM only. A single power-cut over for a second could be enough to lose all the new data. The system is 'fragile' and such an event on a computer crash because of software error-trapping would lose this could be hours of work.

Storage - since all the data is written into the medium in one operation, the storage is simple, if there is a problem with the Data write, the operator will continue regardless, but the new name file program is RUN the File Data will not load properly. Result - a system crash and all the previous work is useless because the Data is unobtainable.

So, despite the ease and simplicity of sequential file programming, we shall consider instead the merits of the relative file type.

Relative Files

In relative file programming really works all the extra effort of

programming? The advantage over the Sequential File can be summarized as follows:

File Size - the relative file RECORDS are stored individually, on the disk, so the relative file size is not dependent on the computer memory but the limitation of the relative file size pointed on the 1341 or 1370 disk drive. In all cases, straight the limitation is 16382 bytes (less on the 1370 double-ended drive).

Efficiency - because each RECORD is placed in its unique position, each can be accessed with one operation controlled by the program. It is no longer necessary to read through the whole file at the beginning of the Program RUN.

Flexibility - because the RECORDS are written individually, on the disk storage medium, a system crash or power failure does not mean the loss of any data except the very last RECORD since operation.

Storage - since the RECORDS are written as they are entered, any problems affecting the write operation would be signalled at once and would only affect that single RECORD.

There is an advantage - massive file corruption available each RECORD can be accessed immediately, the system is much less vulnerable to crashes through error or power failure. There is a price to pay, of course. The maximum relative RECORD size permitted is 254 characters, including spaces and separators, more of that later.

So the relative file has advantages over the sequential file but to be programmed more carefully to take full advantage of the facilities. We'll now look at the relative file programming theory.

I have assumed that you already understand the usual statements PRINT INPUT GET OPEN CLOSE, and the new BASIC 7 OPEN and DCLOSE. You should also have a working knowledge of string arrays and variables if not perhaps you would be as well to study a short course of BASIC programming first.

Once you have worked through this series you will have a library of BASIC routines to enable you to program a relative file for any purpose under a full-blown database on a simple relative file. What you require, the methods and program routines needed remain the same.

Let us take a quick look at the theory of relative filing. Instead of the

data being stored in a huge lump on the disk surface ready for reading into memory, the data is written into suitable RECORDS separated onto the medium. The later versions of BASIC have DOS commands which calculate the correct positioning of the read/write operation automatically. Don't despair! As owners, I shall cover your machine as well!

Here is a simple example. Suppose we need to write a relative file for a disk file. The one I use for my disk has only a thousand program names stored on it. For disk files which store all as a sort of database, all we need to do is to calculate the length of the RECORD as it is placed on the disk. What information do we need on each RECORD?

Well, we need the number of blocks, the name of the file on the disk, the type of file and the name of the Disk. So the RECORD would look like this:

File Size	File Name	File Type	Disk name
3 chars	50 chars	3 chars	1 char

The database therefore has four fields and a total length of 33 characters. Since each character occupies one byte of disk space the RECORD length is 33 bytes. Easy to do, isn't it?

There must be one more character on the RECORD that is usually used to be the RECORD length must be shown as 34 bytes.

Now we have to look at the question of separators. Quite simply, there are two ways we can write and read a RECORD as a relative file. We can write the RECORD as one passing a single string which is the fastest method, or we can separate the FILEs with a carriage return or CHR\$(13). Why would we do that?

Let's look at the above example again. The total length of the RECORD is 34 bytes. This can be read as one single operation without any buffer problems. (Remember a single string of 34 characters can be read in the Commodore 64, or 160 for the 128.)

A string can be added together so a total length of 256 characters, but each a string could not be INPUTted in one read because of the buffer limitation. In our case, the length of the RECORD enables us to read the entire record in one operation. I shall be looking at the question of separators in the next article of the series.

The other use of operators is to stop the read of a FIELD within a RECORD. This is really only useful if the length of each FIELD is varied throughout the file. In our case we are going to ensure that each FIELD is exactly the same length so operators are not required.

Now we know the length of the RECORD we can determine the permitted number of RECORDS in each file. This limitation is imposed by the DOS, and is a total file length of 167 1/2 bytes. So the permitted maximum number of RECORDS is 16712/33 = 5064. Since we will be using the constant for different purposes they will all declare that as a variable i.e. `AVAIL=INT(16712/33)`.

We are allowed a total of over 4000 RECORDS in the file. Now we can manage ways in which we would OPEN the relative file in BASIC. Files could not be erased if we declare a variable 'LREC' as the length of the RECORD then we open a file with the simple statement:

```
open # 5 "file", I, (rec)-60:off
```

What? Was that it? Yes. But let us look at the RECORD length again. We also need the FIELD pointers, i.e. the place within the RECORD where each FIELD begins. We will need these so that we can display the RECORD and print it out. It would be a pain to work these out so we would use a FIELD pointer routine to do this for us.

```

1120 rem **** calculate field pointers
1130 (rec/33) REM ** declare length as I
1140 for a = 0 to c: REM ** C is number of FIELDS
1150 len = (rec/fields)/REM ** add field length to LREC
1160 (pointer) = len: REM ** declare field pointer
1170 rec = I: REM ** end loop
1180 (pointer) = I: REM ** in FIELD pointer is always I
1190 goto 1

```

This routine works for any number of fields in a record. It will work out the total length of the RECORD and the FIELD pointers for each provided that the length of each field is stored in the array FIELD() before and. For creating a database, the FIELDs may be any length and any number within a RECORD. If the length of the RECORD is greater than 168 however, an additional routine must be included to allow for the use of a single separator so that the RECORD can be read back.

```

1194 (len) = I: REM len = 198
1195 (rec - len) / 33 REM ** allow for separator
1196 return

```

Display of C64 raw read even more lines, depending on what sort of screen you are using to use. More about that later. Instead of the lines shown above you will need the following:

```

1200 (len) = 33: REM len = 198
1201 (rec - len) / 33 REM ** allow for separator
1202 if (rec) > 178: then 1190
1203 (len) = (rec - len) / 33 REM ** allow for 2nd separator
1204 return

```

I would suggest a loop to INPUT the names and lengths of the FIELDS like this:

```

1210 input "Number of Fields Required": c
1220 (len) = I: REM **** the loop starts at 0 as c-1
1230 (pointer) = I
1240 print "Name of field": i
1250 input field(i)
1260 print "Length of field": i
1270 input field(i)
1280 return
1290 (len) > 194: then go to add another rem ** check for maximum RECORD size
1295 goto 1210: REM ** now set up the file

```

You may consider standardizing the lengths of the FIELD names to, say, six characters to make it easier to display them on the screen later, like this:

```
1295 (len) = 6: REM ** standardize
```

However, if the RECORD length LREC is greater than 254 bytes since no RECORD can be longer than that, then the FIELDs will have to be defined until the RECORD is a whole contains less than 254 bytes. It is simple to GO SUB to another routine which displays the FIELDs and reports which one to edit.

Opening a Relative File - BASIC 2

No. C64 owners, I haven't forgotten you. You need the BASIC 2 version of opening a relative file. Your DOS does not take on much of the work for you, but provided you follow the general layout of these lines you will be able to adapt them for your own programs. You would OPEN the relative file with:

```
OPEN#5:FILE#1:"FILE#LREC"
```

Once the relative file has been opened it can be used for both reading and writing. RECORDs, another advantage over the sequential file, which can only do one or another and not both.

You would have to open the error channel first in order to read for Disk errors.

```
OPEN#15,1,1,5
```

Dealing With Errors

Now we have started using the DOS commands, we will need to check the error channel of the drive over time we access the relative file. You would think that this would slow the program down, but surprisingly it seems to be the reverse. Because the error channel is constantly checked at every read/write operation you will find that the program runs much more smoothly and without errors. This is especially important because it relates files the DOS is working that much better.

With BASIC levels higher than the majority 2 of the C64, you might have a DS assignment. The # 4 and certainly the DS have and we'll look at this first.

The DS and DSE Commands of the built-in disk error command which can be used in direct or program mode simply typing DSE and pressing the RETURN key will read the Disk Channel and give a result normally 00:04:00:00.

If there was an error the DS command will clear it and turn off the error light which would have been flashing on the drive.

It is the first number '00' which we are generally concerned with. The first number in the error number which we can use to take appropriate action.

The first thing to detect is if a constant that there is no error and that to return to the same routine as soon as possible. Error numbers less than 2 are not true errors and may be ignored. The error number 01 for instance is an indication that files have been scratched.

So we will ignore errors beginning 3 with the way that line of this Error Check sub routine:

```

1300 rem ***** disk error check routine
1310 if (ds) < 3: then return

```

If we are writing to a RECORD which has not previously set up, the DOS will actually create a file as written.

statements so we shall give the error number 50. (Record not Present)

```
ERR 50 = 50 disk printer
```

Of course, while writing the record you may wish to check other errors such as the error 71 (diskette error which can be corrected with a soft or badblock command if it's caused by a bad sector) before you may collect or tabulate with relative file number. The DOS of the drive you up the relative file and does its own bookkeeping, there is no sign of the relative or collect command causing the file. The warning about a disk or collect applies to random access files which is mostly (disksort).

```
DISKERR = 71 disk collect return
```

You may also like to display any real error on the screen and then returning to the Menu such as

```
DISK print disk-error printanyof goto disk error return to menu or STOP whichever you prefer
```

All we need to remember now is to GOSUB into the sub-routine after every read and write operation.

Disk Error Checking - BASIC 2

The poor old BASIC 2 of the Commodore does the same, but in a much more long-winded fashion. The Commodore has the same error numbers but there is no DOS command. We also have to ensure that we have opened the Drive Channel 15 and most people prefer to use the user file and channel numbers, hence the OPEN 15:15 above. Since we have noticed the DOS or the DOS command we have to INPUT the error channel number from the File no if it is the channel 15 already opened. As do this with the first line of the sub-routine.

```
DISKERR = 50 disk error check routine
DISKERR = 15 or 15
and then we can continue with the remaining checks
ERR 50 if = 20 then return
ERR 50 if = 50 then return
ERR 50 if = 71 then print # 15 "NO" return
```

Now we can add the error check sub-routine to the open file routine of the program.

```
OPEN 15:FILE1:"PROGRAM.DIRECT"
CLOSE 15:GO TO
and for the 15,
```

```
DISKERR = 50:FILE1:GIDIRECT
CLOSE 15:GO TO
```

Now we have the relative file opened and the error-checked, now we have to create the RECORDs to write to.

Setting Up - BASIC 3.5 +

The DOS will write to each RECORD whether it has been created or not, because we have written-out the DOS error RECORD NOT PRESENT. However, this is not the most efficient way of doing it. If we tell the DOS to write to the highest number of RECORDs which we might need the DOS will create that RECORD first, and then go on to create the RECORDs below it down to RECORD 1 but we have to tell it to do this.

With BASIC 7 it is a easy DOS works out the correct position for each RECORD all we need is to tell it the RECORD number of the LAST RECORD required and the DOS will then create all the RECORDs up to it. This can take some time because even the 1571 writes only about three RECORDs per second.

For the thousand RECORDs there would be a long delay while these were being created which is very boring. You might consider creating the RECORDs in blocks of fifty creating the next batch of fifty when the RECORD number reaches the end of the created file.

The statement for all read and write operations is RECORD (the number after the symbol) is that of the file previously opened, in our case first if the record to be accessed is a variable then the variable must be enclosed in parentheses. The last number given is the byte number of the start of the read or write, and here this is 1.

Now we can program the create file sub-routine.

```
DISK print "Creating File" print #
DISK print "Records Set at" read
DOS OPEN # 2 (maxfile) (file) mode to 0
DOS record # 3 (end) goto file
DOS record # 3 (start) goto file
DISK print # 3 "file 15:15" goto file
DISK close goto file to return
```

Now we make the RECORD statement twice. This is recommended by the 1571 disk-drive manual as a safety measure. The OPEN file statement has the name of the file NAMES enclosed in parentheses. Note first, at what the poor Commodore likes to do!

File Create Routine - BASIC 2

Now Commodore we have to write view out. The same basic principles

apply but we have to do more programming in order to achieve the same results. We have already looked at the OPEN statement for the file now we have to write another routine so that the RECORD pointers (not to be confused with field pointers) can be calculated before a read or write operation is commenced.

We have first to calculate the file and byte of the RECORD before we begin. The RECORD statement is closed to go on the 64 or the 128 in 64 Mode but in setup program a separate sub-routine to take the place of the RECORD statement.

We write this sub-routine so that it can be inserted to form any part of the program. We shall write the routine for every read and write operation. We can do it over the disk error check sub-routine.

```
DISK open ***** 64 Record Pointer Routine
DISK file=setup/256)rem***** to a desired record number
DISK file=pp-256)to rem** to and to use the high and low bytes of the RECORD
DISK return
```

Now during the program provided that the variable RP contains the desired RECORD to access a GOSUB to this routine will return the proper pointers to that RECORD within the file. Now we can continue with the file create routine. First we put a message on the screen to explain what is happening.

```
DISK print "Creating File" print #
DISK print "Records Set at" read
and then we open the error Channel
DISK open 15:15
```

And then we go to the next-goto. Notice that the OPEN statement contains the string NAMES. Pay particular attention to the odd format of the statement. One missed comma when the quote marks will give you a syntax error.

```
DISK open 15:15:10 "name file"
"chr$(m) goto file
```

We use the record pointers routine to find the file and to bytes of the RECORD by declaring the variable in as equal to zero.

```
DISK print anyof 15:15 rem***** goto Record pointers
```

And then we position the pointers before we do anything. You notice that we use the Command Channel 15 to position the pointer. The CHR\$(96) is a constant used to keep the file compatible with the new BASIC Plus.

work. Always use the number 95; then add the File number (and the command file no. 05) to it.

```

C140 print #15 to #16:R0000000000
Go to #16:R0000000000
    
```

We repeat the statement for *forall*. Notice that line 1 has simply added the file number 3 to 95 to provide the channel number.

```

C140 print #15 to #16:R0000000000
Go to #16:R0000000000
    
```

Then having positioned the pointers to the correct highest RECORD number we write the special null character to the RECORD. Notice that the PRINT statement uses the file number and not the channel number to write to the RECORD.

```

C140 print #3 to #4:R0000000000
1405 Close: govt-1410
C140 Close: C140:00
    
```

Here we have closed the file and checked the disk for errors BEFORE closing the command channel 15. It might be easier to simply open the command channel right at the beginning of your program and leave it open throughout, only closing it when all processes have finished, but here I

close it to make the point.

Although there is no sign of it from the program, the DOS in your disk drive will take over now. Underneath all the RECORDS is the file ready for future use. For the moment you might consider setting the variable *AVAIL* to use 100 RECORDS to begin with and then creating the RECORDS in batches of file addresses you may have quite a way until 4000 RECORDS have been created.

They are all the routines you need to create a relative file ready for use. Remember you must specify the length of the RECORD *LBREC*. You should have already decided on the length of each of the FIELDS and assigned those lengths to the FIELD array, and declared the number of FIELDS in the variable *C*.

If you have done that the FIELD pointer sub-routine will work out everything else the program needs. String or numeric variables may be used with either BASIC 7 or 2 but these using the *CHR* MUST be very careful not to create the common mode file quote marks.

In order to use a relative file, it is

important to get the routines in the right order. Use them as follows: Get the name of the File into *NAMED*. INPUT the FIELD lengths into the Array *FIELD(L)* with *C* as the number of FIELDS you require. GOSUB to the field pointer routine. The length of the RECORD will be returned as *LBREC*. Use the *AVAIL* variable to calculate the permitted maximum number of RECORDS in the file. GOSUB to the file creation sub-routine. *CHR* owners will need to GOSUB to the special RECORD pointer sub-routine for the release from registered DO NOT Forget a Disk-Error check for EVERY disk access.

The file will then be set up ready for use.

In the next part of the series I will be detailing routines for calculating the different FIELDS into a single STRING for writing and then reading them from the RECORDS. I will explain the use of the FIELD sub-routine as a file search-table later on so that you may decide for yourself how to use them.

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10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
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TELEP UNFRANCHED 10 15 20 100 100 10 in a box

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10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
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TELEP UNFRANCHED 10 15 20 100 100 10 in a box

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10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88

OMEGA DRIVES

10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
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10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88

TELEP UNFRANCHED 10 15 20 100 100 10 in a box

10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88
10-20-88	10-20-88	10-20-88	10-20-88	10-20-88	10-20-88

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Input Clean-Up

Using the INPUT command can be a very messy business. Here's one way around the problem.

By Kevin Blight

By Kevin Blight

The only problem with the built-in INPUT command on the Commodore 128 is that the user is allowed to type in any combination of characters available from the keyboard. This can cause problems if his response, a comma or some words entered without a carriage return, is added to the question mark and cursor. A statement which results in a screen prompt such as

```
NAME?      ACE
```

It would be useful for a database type of program. Two inputs, on one line would result in the word ACE being added to the string entered at the name.

Input Clean-Up circumvents these problems and does:

- 1 Maximum input length is set by the user.
- 2 The actual input length is stored in a zero page location.
- 3 Upper/lower case switching is disabled.
- 4 Comma and inverted commas are ignored.
- 5 Only alphabetical characters and

- 6 punctuation marks are accepted.
- 7 A delete function is available (using either cursor left or the DEL key).
- 8 Cursor right inserts spaces.
- 9 The user will exit from the routine if cursor up, cursor down or the RETURN key is pressed. In any of these cases, a flag is set to indicate which one it was.

Clear installed, the new routine is selected by SYS 4654. The value of *n* represents the maximum length of the input and can have any value from 1 to 80 and any value outside this range will cause the routine to abort automatically.

A special cursor is created during input (similar to an address cursor) and if this reaches the maximum length, when *n* is set, when the program was SYS called, the routine will load back to Basic program control.

As stated earlier, exit from the routine can be achieved with cursor up and down or RETURN keys. The method of exit is then recorded in location 255:

```
0 Cursor down pressed
100
01 Enter maximum length was reached
```

- ```
or RETURN was pressed
1 Cursor down pressed
2 Cursor up pressed
```

With the correct routine, the values can be used to indicate if the user wishes to go forward or backward through a list of data. The length of the input statement, stored in location 251 of Zero Page,

Apart from the Basic loader is downloadable. There is also an example listing. This takes the input and uses it as *AS*, while its length is stored in *N*.

With very little work, Input Clean-Up could also be made to run on the C64. Only two of the above locations specific to the command within the routine, the rest is conditional branches and SFTDC, SFTFC are both part of a simple extension to both machines.

Change the Basic loader here:

```
501000
100 DATA 09123 09070
101 DATA FF A9 20 A2 09100
C00999
200 DATA FB 4D CB C0 E4 FA FF
10 0900
410 DATA FB 4C 2B C3 5A 4E 49
038A
```

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# Reveal Your Characters

*Sprites don't have to be visible to be effective.*

*Here is one way to get them to work for you.*

*By Simon Clarke*

**H**igh resolution sprites are usually visible coloured characters which show up well against the background colour. In other words the colour of the 'font' Predefined from the background colour. In some of my commercial games I have found an interesting use for invisible sprites: solid sprites set to the system background colour - so smoothly reveal text into the display screen.

An unexpanded sprite (Sprite 0) is created as a solid block of colour measuring 16x pixels (the size of one character). The colour of the sprite is then set to equal the background colour and is placed on the screen where the first character of the text will be placed.

As the sprite scrolls across the screen pixel by pixel the first character is revealed. Once the sprite has moved far enough to reveal all of the character the next character is 'peeled' into position and revealed.

This process repeats until all of the character are displayed giving

the impression that they have been printed pixel columns by pixel columns. This technique opens up several possibilities for the programmer and a few suggestions follow.

Larger expanded sprites could reveal larger blocks of text or large user-defined characters by working on all of the sprite pixels.

Text sprites could reveal text from white end of a line but try to arrange that they overlap at the middle of the text line over a space or the cursor will be spotted.

Complex reveal techniques can be developed by using specially shaped sprites. An example of this would be to create the top corner of the sprite as Figure 1.

Each 'x' is an odd pixel and the '0' represents a revealed no pixel. The effect created is that each pixel row 'x' revealed pixel by pixel. As the second row of the first character is revealed the next character starts to appear.

By peeling values to the sprite

Figure 1

and according to a preference pattern the artist programmer could make letters look into use as an apparently random font pattern. Even then use Sprite?

Think about the process for while and I can see that you can adapt the program to all sorts of purposes. Remember there are no restrictions to the process apart from the number of sprites display rules. Use several sprites on your high resolution screen and for an example colourful and impress results.



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in four segments and (the most welcome to enter) I spend an hour and a half to get the map. Only by using the map can you find the correct place to detonate the bombs. There are two types of bombs that blow away walls, split vertically or horizontally and their instant hit sound.

You'll also have to deal with floating walls that flip the light on and off, it's tough to move when you can't see where you're going, and dolls that must be shuffled around in between the two shields as you tackle screens that range from the non-dots and stripes through explosive screens and the challenge to the ultimate decoder.

Solve the decoder and you could win your place in the Order of Ice with a badge and certificate to prove it.

A superb game that is a must to all strategy games.

111

## Function

Title: *The Sapper*, Logros Ltd, Doko House, Gresham St., Cambridge CB1 2LP. Tel: 0540 44555. Machines: £20. Price: £14.95 (C), £12.95 (Retail). Originator: S. M. Playability: 9/10. Graphics: 6/10. Value: 8/10.

## Chuck Yeager's Advanced Flight Trainer

**C**huck Yeager, the first man to break the sound barrier, invites you to join the test pilots and as you push to different altitudes on their limits, and then carries it.

Below you can climb into a Spitfire or a P-51 and fly, as they like to fly, through the flight simulator and have

highlight the importance of not having your landing gear copped off and into the net with a single shot. The mission starts a carrier and squadron that are easily followed by several interceptors so that you're not as easily in one place longer than you are. Being a carrier when you're parked in a carrier bay with the clock still spinning is not nice!

At the point you're in, you've really only killed one enemy ship out of the 14 players in a ship and the only way to finish it is to hit what they can't do, their surface and unpredictable motion.

That fight simulators have you told what you're best for, a few fights but Clark Taylor offers you 14 fight positions for the price of one and the chance to win 14x and not to lose cause the message is the great war's status.

E.H.



#### Too slow.

**Title:** Clark Taylor's *Advanced Flight Trainer: Supplies*  
**Release:** 1991 **Language:** English **System:** IBM PC/XT/AT, MS-DOS 2.0  
**Price:** \$49.95 (C) 1991 (E) 1991 **Machine:** C-1  
**Play:** 180° (C) 180° (E) 180°

**Strategy:** 0/10 **Playability:** 7/10 **Graphics:** 8/10 **Value:** 10/10

#### Open

Can you stop the Open in its tracks? That's the challenge laid down by Open in the complete version of the classic board game. The Open is a 2-player board game that reflects the benefits of the 2nd Century. You controlled a defense force of interceptors, tanks and gunships which joined to surround common port and stop the Open.

Open the game is supplied on disk in a standard computerized Open/Microgame box with a manual, tactics, and a manual and a manual before you get your hands on an interactive board which is available on a handheld where you can check the full contents.

Open the computer is a massive living machine that usually moves without interceptors and it's built by flying,

then with it's own personal crew. There are two types of Open - Mark III and Mark V. Mark III is available with an arsenal of two missiles, a main battery and four secondary batteries that can work more defense. Mark V is even worse with its abilities, two main batteries and two secondary guns. All of which can fire every turn.

Before the Open begins, the interceptors join in a formation the defense can use as a defense by spending interceptors and interceptors. With these points, it can construct a defense to protect the common port. Like the common port and you lose the game. The defense gives you (the human on one player or game) can build his forces from interceptors, tanks, and interceptors and the various GEVs. The GEVs are light interceptors that have the advantage of being able to move twice in a turn, once before and once after they fire. This means they can strike at a weakened Open and then retreat out of range. However, a full strength Mark V will stop them apart.

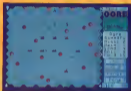
The winner you will see will vary depending on the Open you face and the defense you have chosen, but it's all probably by some where between the GEV big gun tactics and the jet and interceptors tactics. Whether or not you copy will still have, there's a play mode game like Open before and should include the challenge of an army trying to stop a single piece in a remarkable close fight.

Push-up moves and it's easy to drop of objects, it's and trapping the pace of the one by potential Open should make it a real a strategy game and will require a significant use of the little pieces with it you're going to stop the Open.

The board game version of Open is still available in a special game shape (and highly recommended) and was followed by a sequel called Open and several articles in both magazines detailing the Mark V Open in well as several and more about the Open world. Perhaps there's a sequel coming in the shape of Open's 180° be made through.

I don't think the industry that was involved in the last game will be so busy.

E.H.



#### Impressive

**Title:** Open **Supplies:** Open/Microgame 2 **Machine:** IBM PC/XT/AT, MS-DOS 2.0  
**Release:** 1991 **Language:** English **System:** IBM PC/XT/AT, MS-DOS 2.0  
**Price:** \$49.95 (C) 1991 (E) 1991 **Machine:** C-1  
**Play:** 180° (C) 180° (E) 180°

**Strategy:** 0/10 **Playability:** 8/10 **Graphics:** 10/10 **Value:** 10/10



## PHANTASIE

**H**ave you heard the old saying that the simple games are the best? Here's another one to prove it. It will also give you sleepless nights and no doubt some responsible damage to your brain. Games like this should carry a government health warning!

The screen display shows a plain rectangle and some "abstract" graphics that try to set up the screen however. All the action takes place in the rectangle. One after the other shapes tumble down from the top of the screen and rest where they either reach the bottom or fall on top of another piece. Using the joystick you can move the pieces left and right as it falls and rotate it through 90, 180, 270 and 360 degrees by successive presses of the fire button.

The object of the game is to arrange the pieces so that they fit together to form complete lines across the rectangle (you always leaving one gap). If you manage this you score points up to the maximum of 60 pieces that is done but it also allows the pieces to reach the top the game ends, probably with you hearing the joystick sense the room in frustration.

The pieces are simple enough and consist of straight lines, L shapes, boxes, drops and T shapes which fit together much if you get them in the right order but the game always seems to throw you exactly the wrong piece at the wrong time! This level is not with some difficult juggling to do if you are going to stay in the game. That's all there is to it except to warn you not to go over the maximum and play it once. I played it only for two days and with confidence to meet that proved experience. You have been warned!

### Developer:

Side: Tessa Saghai Miramax/Alpha Home 86 71 Shore Lane, London EC4P 4AE Tel: 01-777 4841 Machine: C64 Price: £8.99 (C64) £12.99 (MSX) Developer: 2110 Playfield/2110 Graphics: 5-10 Publisher: 8/10

## PHANTASIE III

**T**hen it (and surprisingly) the third in the SE Phantasie series and with the idea of your best party of adventuring heroes that charmed, gamerd and halflings joined

together in a coalition war to stop the Dark Lord Mordor from coming out his place to take over the world!

As you begin your quest your thoughts are far from the noble struggle ahead, instead you must concentrate on your staying alive in the massive Phantasie III world of wilderness, towns and dungeons is packed full of monsters that would love to add you to their menu and you shouldn't be surprised if your entire party is wiped out by the first encounter! In fact, that happens with alarming regularity as you'll get plenty of practice in creating characters and assembling parties... I found the best combination of characters was to have three Fighters to beat up anything that moves, a thief to fire a bow, pick locks and disarm traps and a wizard and priest to sort spells and heal the mopey wounded.

Phantasie I and II players will be familiar with the basic game system in which you travel the land in search of clues, treasure and magic items and weapons that will help you in your quest but will appreciate the improvements made to the game's graphics and gameplay. Now the black landscape is transformed into pseudo 3D. It will jump across the screen but it just now a look-honor. As before you encounter local creatures that roam the land but now the action is quicker and the hot and hot of combat is accompanied by a limited animation. Combat can be completed as each character meets double whether they are going to strike carefully (usually) to the front of the party, or as the middle or comes at the back, then whether they are going to throw, attack, slash, parry, cast a spell or fire a bow and arrow. Then the action continues with the members battling you to the death and out of you die! If you win the contest you may pick up some gold, some experience points and maybe even a useful magic potion, weapon or armor. If you all die then you're transported to the next place where a demon stands to destroy you or recover you at one of the legions of the dead! You can still fight in normal but you need 1507500 experience points (instead of the usual 4000) to reach the next level!



The game's extremely experienced 30 levels to create the monsters when they enter a town and on Mordor. It increases in level if they scored a gold. There are various not only means more but points to keep you alive. I don't have three chances to improve your character abilities such as their chance to hit, their ability to parry attacks and their skills at picking locks or disarming traps.

Eventually, you will build up a party of heroic fighting characters that can survive a surprise attack from the blackwing dragons and be ready to park down who take on the Dark Lord himself. The best of the Phantasie games.

**Features**

**Title:** *Platoon '87* **Supplier:** SSI (U.S. Gold) **Code:** 201  
**Author:** War **Editor:** Benjamin 26 741 **Tel:** 021 256  
**U.S. Machine:** 1.54 **Price:** 119.99 (dual disk)  
**Graphics:** 7/10 **Playability:** 5/10 **Graphics:** 7/10 **Value:**  
 8/10

**GUADALCANAL**

One of the bloodiest campaigns in the Pacific Theatre of World War II, the struggle for the island of Guadalcanal had five months starting in August 1942. Not only did some take place on the island itself, but also the surrounding sea as the American and Japanese navies struggled to maintain supplies to their own forces while simultaneously trying to destroy the enemy fleet.



The *American* campaign, *Guadalcanal* gives you three main scenarios to attempt. A short three day campaign allows you to gain basic experience using the American force before progressing onto the full campaign where you can play either side.

The game tries to encompass all the major elements of the campaign so the player will have to come to terms with fighting on land, at sea and in the air. Maintaining supplies, moving troops, sending out scouts and engineers in order to discover the location of enemy forces and attempting to sink the enemy's leader while protecting your own are other vital skills.

Control of the game is via a series of five main screens with most of these leading you to other sub-screens or screens. There is one map on screen, a small one on the left and one of the area surrounding the island, a large scale scrolling map of the island itself. Units are depicted as top-down icons or single direction on the respective maps and I found that these were difficult to read at times. This was especially true when

it came to moving land-based troops which involve clicking a mouse on the large map and watching the icons placed appear on the small one.

My impression when playing *Guadalcanal* is that the authors tried to include too much with the result that playability has been sacrificed for realism. This is all the more so when coupled with a tricky control system and a poorly designed instruction manual. There is nothing wrong with complexity in a wargame and experienced wargamers will no doubt be delighted to grapple with this game. But for anyone wanting to try wargames for the first time, I would suggest that they look elsewhere. **G.B.H.**

**Features**

**Title:** *Guadalcanal* **Supplier:** SSI/US Gold **Code:** 201  
**Author:** War **Editor:** Benjamin 26 741 **Tel:** 021 256  
**U.S. Machine:** 1.54 **Price:** 119.99 (dual)

**Graphics:** 7/10 **Graphics:** 7/10 **Playability:** 3/10 **Value:**  
 8/10 **for** *Guadalcanal* **Value:** 7/10 *interface*

**NORD AND BERT**

This is a departure from the normal *Infocom* style of games in so much as it might seem trivial rather than one being one. There is a superb creation scenario here too.

The stories are set around the town of Pendera, a somewhat surreal apple drop which is a need of sorting out. Each of the eight stories contains a different type of word play — clues, puns, proverbs etc. For example, down on the farm, there are a number of things that need putting right. A field comes in a muddle? How do you get rid of it? Simple, you make a mousetrap out of a muddle! Two birds are kidnapping your corn so you need to find a name in order to kill them. And so on.

If this type of wordplay appeals to you, then all well and good but be warned, you will need to be very well versed in letter case clues. The main problem with this game is that



there are two main answers that the average Brit will not know and so will have to resort to looking up the relevant (and some) of solutions are included on the disk. I would not have needed the odd one but I found that it was having to check too many times and in my opinion, this does not represent good value for money especially at just under twenty-five pounds.

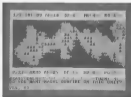
GEM

#### Trochilus

*Trek, Need and Best Cooker, Make Need as Top of a Sapphirer, Anomalous/Anomous, 21 Ford Street, Hampstead, London NW1 1 2PH. Tel: 01-432 1197. Machine Cost Price: not given. Price: £29.95.*

*Organoids: 30/10 Graphics n/a, Playables: 1/10, Value: 7/10.*

## OKINAWA



**I**n late 1945, the US warplane fleet took on to visitated US bases in their mission to take the vital Japanese island of Iwo Jima. Now in the latest of the *Clang* conflict series you can witness British and US forces as they secure the equally important island of Okinawa.

If you manage to take the island you the Allies will be able to build an airbase from which they can launch an attack on Japan. However, this is going to be one as there are thousands of Japanese troops, tanks and gun emplacements, as well as submarines and kamikaze pilots to take out your naval support.

The game is played in turns as in which you can either move or fire some or all of your units. It's not moving about like as you have to plan your units a few well in direct your firepower in the right place at the right time. As the attack begins there are only Japanese forces on the island (and those are hidden) so you must land your troops at any of the seven selected spots. Form a beach head and then drive on destroying all in your path.

As the battle rages you'll discover the relative strengths and abilities of military units and vehicles, as well as when and where to use your naval gun support.

Historically, Okinawa was a dress rehearsal for the invasion of Japan and the question you'll wonder will when you is by the Allies allowed their troop elements from one to six million men and finally opened the the doors. As a

warplane it plays well and the narrow, craggy coast provides physical obstacles with a difficult task.

TAL

#### Trochilus

*Trek, Need and Best Cooker, Make Need as Top of a Sapphirer, Anomalous/Anomous, 21 Ford Street, Hampstead, London NW1 1 2PH. Tel: 01-432 1197. Machine Cost Price: not given. Price: £29.95.*

*Organoids: 30/10 Graphics: 7/10, Playables: 1/10, Value: 7/10.*

## POWER STRUGGLE

**A**re you a power mad megalomaniac? If not, here's your chance to see whether you could rule the world in your bid for control of the East or the West in *PS: A Power Struggle*.

When the game is loaded the program assigns either random countries to each power or the standard setup.

*Power Struggle* is played on a limited version which you can meet as many orders as you have time for. If you run out of time you'll have to wait until the next turn by which time you may have lost control of the country.



To view your orders you simply move a cursor across the map and highlight a country by pressing the fire button. The producer a display that shows the current strategies of that country's army, industry and political power and a second game will start on the command a one through which you can raise more troops, increase industry, industry can then produce armies, at a later time, attack an adjacent country, enforce (support) another country, supply (aid) industry, an adjacent country, or politically, initiate another step.

At the end of each turn the computer resolves all combat and the political balance of the world. If any state support you fully, then you'll gain total control of them. Control the world and you'll win the game.

To succeed you have to perfect a difficult balancing act between military attacks and their heavy costs in troops and the more cautious political infiltration.

This isn't quite *Colonial Campaign* but is a low level power game you won't struggle to play it.

TAL

## Facilities

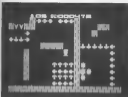
*Title: Prince of Persia* Supplier: PMS (552 Sierra) Sources: *Amiga* (C16) *MSX* (Tel: 0204 667116) *Masterdisk* (C64) *Plus* (Amiga) (C64) (D64)

*Originally* 4/10 *Playability* 7/10 *Graphics* 5/10 *Value* 6/10

## SARACEN

**D**amon's Saracen, first released through the Amiga.com label by new publisher Manticore, is one of those really addictive but frustrating games that you just can't stop playing. The game casts you as Ihan the Crusader who can battle through 100 rooms (including 100 Saracen chests) before you are well on your way to meet with your armies, Islamic soldiers that pursue the maze and a selection of body traps to kill the enemy.

To kill the Saracen Chief and reach the next level you now need and place a grenade (???) near to him and then detonate it with an arrow. However, to get the grenade and reach the Chief you will have to get past parading soldiers, blast your way through walls, find keys and then the locks that open sword killer traps and one way doors, exploding bombs and remove magic doors.



To help you survive you can pick up magic shot, single detonate arrows for your bow so you have to make sure you're holding the right arrow at the right time or you'll lose one of your lives.

Luckily, the game is friendly and allows you to continue your next game from the last level you reached, otherwise the game would be impossible.

T.H.

## Facilities

*Title: Prince of Persia* Supplier: Amiga.com (Manticore) 4/10 *Title: Prince of Persia* Supplier: Amiga.com (Manticore) 4/10 *MSX* (Tel: 0204 667116) *Masterdisk* (C64) *Plus* (Amiga) (C64) (D64)

*Originally* 4/10 *Playability* 5/10 *Graphics* 4/10 *Value* 5/10

## WIZARD'S CROWN

**W**izard's Crown combines the role playing action of other 56K games with a strategic combat in which you can plan every move and blow as you battle your way through a perilous quest to retrieve the golden crown of the Emperor. The Crown has been stolen by the evil Wizard Tansen and you and your brave party of adventurers must get it back.

The game begins in a town which has a selection of shops and thieves to rob you but also provides some easy opponents for you to kill and build up your experience. Also in the town you'll find temples to pray in, items to strengthen shops to improve your weapons.

Your party can have up to eight members in a 160 room maze as this game that you follow the discipline of Fighter, Ranger, Thief, Priest or Wizard. Each character class has their own strengths and abilities. For example, Wizards can wield powerful magic spheres, Priests can pray to heal wounds.

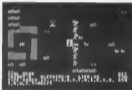
As you build up experience you can cash in to improve each of the main's abilities such as skill or a special weapon or in picking locks, turning the undead, toggle the best price and most wounds with fire and

While your party members have memory you can decide whether to let the computer decide the outcome in quick combat or if you don't like the "hidden hand of death" style of play you can set your own cut-throat and parts of the full battle. In full battle mode you must plan your party formations to meet the onslaught and then wield swords and spells together to win the day. After the battle you may find some of use that you can pick up and get your party to patch up any wailing wounded.

Eventually, your party will grow in strength and wealth and soon will be ready to have the satisfaction of the town and explore the maze where golden loot is slaying members and then re-into your quest.

Wizard's Crown is an excellent mix of adventure and combat and with a playing time of over 30 hours you won't get bored!

T.H.



## Tom Mice

*Title: Wizard's Crown* Supplier: SSI (US Gold) 3/10 *Masterdisk* (Amiga.com) (C64) (D64) (Tel: 017-126 5188) *Masterdisk* (C64) *Plus* (Amiga) (C64) (D64) *Originally* 3/10 *Playability* 3/10 *Graphics* 3/10 *Value* 3/10

# Win a Copy of Jane's Fighting Ships



*Win this month's competition and you could be taking to the high seas with your own copy of **The Hunt For Red October***

**T**he Hunt For Red October from Grand Slam Entertainment (see Argus Prose Software) has already received some excellent reviews in the computer press.

Your Commodore is pleased to team up with Grand Slam Entertainment for this month's competition and the prize here is one of ten copies of the Hunt For Red October Fortranware. The first winner out of the hat on the closing date will win their own copy of Jane's Fighting Ships. A rather expensive addition to your book collection.

For those of you not familiar with the scenario for Hunt For Red October, it is based on the book by Tom Clancy and you play the part of the captain of Russia's most advanced submarine Red October. You are heading for the life of A - to defect. The Russians aren't aware yet to stop you.

## How to Enter

Send the two columns on this page, there are a number of differences between them. Once you have decided how many differences there are complete the entry coupon and send it to the editorial address (see the coupon). Write the number of differences that you have found on the back of the envelope. If you don't your entry will not be accepted.

## The Rules

Entries will not be accepted from employees of Argus Special Publications and Grand Slam Entertainment. This restriction also applies to employees, family and agents of the companies.

The How to Enter section (top part of the rules) The Editor's discretion is final and no correspondence will be entered into.

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# PULL DOWN MENU



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- First • Scrolling up and

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# Adventure Kit IV

*This month we look at the all important role of the parser*

*By Allen Webb*

The parser is one of those crucial parts of any adventure. The routine converts the input text into individual words and checks whether they are in the game's vocabulary. In any system there is an excessive amount of problems associated with parsers. The early basic Adventure games recognised only verb/noun combinations and were therefore tedious to use. Newer games such as those in the Power set apply complex and well handled a wide range of inputs. I had this tech workshop as supplementary and some compression is necessary. I will now go on to describe a parser which gives some of the ways to provide acceptable performance.

In order to keep the code to a reasonable size the parser makes certain assumptions as to the form of the text. These however are not unreasonable. The parser starts at the beginning of the sentence and scans each word in sequence. An occurrence of "the" is ignored and scanning continues until either seven acceptable words are found or until the end of the sentence is reached. Most words can be of differing forms and there are standard checking routines for each. The acceptable forms are:



| Word 1 | Word 2 | Word 3 | Word 4   | Word 5 | Word 6 | Word 7 |
|--------|--------|--------|----------|--------|--------|--------|
| Verb   | Noun 1 | Noun 1 | Noun 1/2 | Noun 2 | Noun 1 | Noun 2 |
|        | Adv 1  | Adv 1  | Adv 2    | Adv 3  | Adv 2  |        |
|        | Adv    | Verb   | Verb     | Verb   |        |        |
|        | Verb   | To     | To       | To     |        |        |
|        | To     | Adv    | Adv      | To     |        |        |
|        | Text   |        | Text     |        |        |        |

The results of the scanning process are returned in eight registers. Registers NOUN1, NOUN2, ADX1, ADX2 and ADV hold the number of the relevant word. This number refers to the word's position in the

vocabulary table. The registers WITH and TO hold 1 if the corresponding word is present otherwise they hold 0. The spoke word is also checked. To indicate speech the relevant text is enclosed in quotes if

text is found, a register called TLEN returns the length of the text. The text is returned in a buffer.

To explain the parser's operation with some examples:

#### • Input LOOK

```
VERB LOOK
ADVERB
ADJ1
NOUN1
ADJ2
NOUN2
WITH
TO
SPEECH
```

#### • Input KILL THE GREEN DRAGON WITH THE LARGE SWORD

```
VERB KILL
ADVERB
ADJ1 GREEN
NOUN1 DRAGON
ADJ2 LARGE
NOUN2 SWORD
WITH I
TO
SPEECH
```

#### • Input TAKE THE SWORD QUICKLY TO THE ANGRY GNOME

```
VERB TAKE
ADVERB QUICKLY
ADJ1
NOUN1 SWORD
ADJ2 ANGRY
NOUN2 GNOME
WITH
TO I
SPEECH
```

#### • Input SAY "HELLO" TO THE GORILLA

```
VERB SAY
ADVERB
ADJ1
NOUN1
ADJ2
NOUN2 GORILLA
WITH
TO I
SPEECH HELLO
```

#### • Input ASK THE DWARF "WHAT IS THE TIME"

```
VERB ASK
ADVERB
ADJ1
NOUN1
```

```
ADJ2
NOUN2 DWARF
WITH
TO
SPEECH WHAT IS THE TIME
```

#### • Input LOOK IN THE HOLE

```
VERB LOOK
ADVERB IN
ADJ1
NOUN1
ADJ2
NOUN2 HOLE
WITH
TO
SPEECH
```

To use the parser, you use the instruction SYS 74086. A prompt will appear near the bottom of the screen. You type in the text and press RETURN when finished. The results of the parser are then returned in the following locations:

#### Location

```
VERB 000
ADVERB 001
ADJ1 002
NOUN1 003
```

```
ADJ2 004
NOUN2 005
WITH 006
TO 007
SPEECH starting at 0000
TLEN 008
```

```
ERROR 1 009
ERROR 2 010
ERROR 3 011
ERROR 4 012
ERROR 5 013
ERROR 6 014
ERROR 7 015
ERROR 8 016
```

If a word is not recognized then the corresponding error register is set to 128 (it normally holds 0). ERROR 1 for example refers to WORD 1. All seven error registers are ORed together to get an overall error register (ERROR). The address you use is a single value to check whether an input is acceptable. Lines 900 to 740 of the editor show how the parser can be used.

The parser code occupies the memory from \$7000 to \$7400 (\$26720-\$26816).

The vocabulary is held in four tables as follows:

|                          |           |
|--------------------------|-----------|
| VERBS \$7000-\$70FF      | 128 words |
| NOUNS \$7100-\$71FF      | 128 words |
| ADJECTIVES \$7200-\$72FF | 63 words  |
| ADVERBS \$7300-\$73FF    | 63 words  |

The numbers of words in each table are kept in four locations:

```
VERBS 26875
NOUNS 26876
ADJECTIVES 26877
ADVERBS 26878
```

The editor provides the means to create your vocabulary. The SAVE option saves both the word tables and the locations holding the table lengths.

So how do you use the parser? The best way is to use a routine for each table. You then use an ON GOTO or an ONDSUB to traverse the verb. Here is an example:

```
0000 SYS 74086 IF PEEK(007)=128
THEN PRINT "ERROR IN INPUT"
GOTO 0000
0010 ON PEEK(000)
GOTO 0000 000 0000
```

Each subsequence would then examine the rest of the input words

and take appropriate action. The parser doesn't recognise spaces, so you'll have to do that.

The parser uses line 12 to default for the input. If you want to change this, include the following line in your program:

```
POKE 007, LN
where LN is the prompt line and has values between 0 to 24. If it is unable to use a value greater than 24, no word input will force the screen to scroll.

```

The use of the parser and the subsequent interpretation of text is the hardest part of writing an adventure so be careful to think things through. Try to anticipate nonsensical inputs and try to use witty responses. There's nothing more tedious than printing a repeated reply, such as "You can't do that" or "I don't understand".

In the final part of this series I will look at windows, and an interrupt driven event loop.

# Morse Code Tutor

*Practicing for telecommunication exams in morse code can be made easier with this utility*

*By Geoff Hackworth*

**R**ecords and ailments have been created to still learning morse code but the savings of letters seem to become familiar after training to their main letters (as you would normally have to unless you were some kind of genius!) The solution is to find someone who can send you random letters in morse code but why bother when the computer program is all you need?

## The Program

The program is designed to aid the learning of morse code by creating random letters selected from a specific list which you have selected, but the user in this way you could learn the alphabet in steps. For example selecting the letters ABCDEF means that the computer will randomly choose from this range when it sends you.

The program also provides the facilities for the user to put in a string of characters and all the characters display on screen as if they were the actual characters. Once you've typed it all in, save the program to disk or cassette. Before I go on some of you may have noticed that the actual machine code starts at 2048, the beginning of Basic? No, I'm not crazy, this is so you don't have to remember a 512 number whenever you want to use it. The very first part of the data in the loader program

corresponds to a basic list containing a 512 call.

Before you attempt to run the loader (which would result in a crash as it will attempt to point the data in on top of itself) remove the 'POKE READ' lines line 60 but leave the rest of the list alone! Now you can safely RUN the program and you can see any disk load errors without the program itself. POKING the data anywhere else you have corrected all the errors go back the 'POKE READ' into line 60 (make sure it's in the original place) and re-run the program.

Now you must make the letters of Basic up one of the way of the machine code pointer. Do this by typing `POKE 1000,0:POKE 101,POKE 102,CLR NEW`. Now LOAD in the Basic loader again and RUN it. The machine code will now be, poked into memory. User this has been done you now have to save the MORSE CODE program as a standalone program. To do this type `POKE 101,1:POKE 102,0:POKE 103,POKE 104,25:SAVETXTname`. Address 10 is your own, sample disk. The MORSE CODE program will be saved. The program can now be RUN.

## Using the program

Once operational, Morse Code Tutor presents you with a main menu screen displaying various parameters which can be changed and the three main options. Before I describe the options, I will explain the parameters.

The parameters which can be changed are the current word parameter: speed (WPM), the delay between letters, and words (given in terms of "dot" lengths) and the number of groups to be sent. The letter is only used in option 3 next page. The delay between words is always four more dots than the delay between letters.

When changing the delay between letters will automatically cause a change in the delay between words. To change the parameters, use the keys 1-7 for the number of groups.

**Option 1 - Select Characters for the test** This option enables the user to specify which characters are to be included or disabled when the computer randomly selects characters in Option 3.

All possible characters are shown on the screen and all those characters in square video are currently enabled. Thus pressing the key corresponding to a previously enabled character will set the character to normal video on screen so that that it cannot be selected. Pressing 'C' while pressing 'F3' will disable the character while pressing 'F7' will disable them all. As a further help on selecting characters, there are signposted corners into three groups, these being letters, numbers, and punctuation. Pressing CTRL+L will toggle all the letters, while CTRL+M and CTRL+P will toggle all of the numbers and all of the punctuation respectively. Once you have made your selection press 'F8' to return to the main menu.

**Option 2 - Speed using words only** This option lets you type in a string of text which you wish to be characters in (Figure 1). The user then selects back at the current WPM speed and using the current delay between letters and words (as set on the main menu screen). The pair of square brackets '[' and ']' reduce the available space for your text (317 characters).

Once you have finished typing in your text, pressing RETURN will send the string you have just typed in. You can press 'F8' to abort this stage and you are then asked for another string of text. Your previous selection is not

## Getting it in

The program is presented in the form of a Basic loader with much level of choice having a character for random letters. Once you've typed it all in, save the program to disk or cassette. Before I go on some of you may have noticed that the actual machine code starts at 2048, the beginning of Basic? No, I'm not crazy, this is so you don't have to remember a 512 number whenever you want to use it. The very first part of the data in the loader program

returned. You may press **ES** again to return to the main menu screen.

**Option 3 - Bygones Tact** This is the most powerful option: it will send you groups of five random characters (selected from those enabled in Option 1) at the selected WPM speed, with the chosen delay between letters and words (as set on the main menu screen).

The number of groups sitting on the main menu screen determines how many groups of five characters will be

sent. Pressing **N** on the main screen will clear this option. You are asked to wait while the computer selects the characters which it is going to send to you (the border flashes during this process). This usually only takes a few seconds, but may be longer if you have only enabled a few characters in Option 1. If no characters are enabled then you are returned immediately to the main menu screen.

When the computer has finished sending the message it displays the

final three of five characters (as an example) on the screen. If **I** is hit, press **ENTER** to a job display. After all the groups have been displayed you are asked to press **ENTER** to return to the main menu screen. If, during the sending of the groups you press **FB**, then sending will stop and you are shown only the characters which were sent before **FB** was pressed.

Please note that, whenever the computer is asked to send any message (no matter option 1 or 3) it calculates the timing according to the WPM speed, delays between letters and words, and a three-to-one account of the average lengths in time of the characters which are currently enabled (Option 2 enables all of the characters because they may all be used). Thus, when using combinations of characters are enabled and set at a certain WPM and delay setting, the actual lengths of the dots and dashes may sound different when compared to those when other combinations of characters are selected. An example of this is that, with only the letters **EST** as being enabled, the terms of 'length' in time that are there for the individual dots and dashes will sound longer than if only the plain-vanilla characters were enabled (which sounds longer than the letters **EST** sounds proper). This takes account of the fact when calculating time long to make each dot and dash. A similar effect is noticed when changing the delays between letters and words. A similar effect is noticed when changing the delay between letters and words. A larger delay causes the dots and dashes to be shorter (when the WPM setting is not increased) ensuring that the same number of words is sent to the final amount of time. This may take some getting used to, but if the sending is too slow or too fast for you, just adjust it and change the WPM speed to take account of the pressure change you made.

Note that in time terms the delay between letters is three dots, but I have allowed this to be variable so that the learner is given more time to think about what they have just heard before another character is sent. You should eventually be able to receive sent the delay at three dots.

Also note that in Morse code the delay between dots (and dashes) of a letter (i.e. the delay between the dot and the dash of the letter 'A') is equivalent in time to the length of a dot. A dash is always three times as long as a dot.

Figure 1

| Char | Morse           | Char       | Morse                   |
|------|-----------------|------------|-------------------------|
| A    | · · · —         | V          | · — · · · ·             |
| B    | · · · · · —     | W          | · — · — · —             |
| C    | · · · · · — ·   | X          | · — · · · · · —         |
| D    | · · · · —       | Z          | · — · — · — · —         |
| E    | ·               | 1          | · — · — · — · — · —     |
| F    | · · — · — · —   | 2          | · — · — · — · — · — · — |
| G    | · — · — · —     | 3          | · — · — · — · — · — · — |
| H    | · · · · ·       | 4          | · — · — · — · — · — · — |
| I    | · ·             | 5          | · — · — · — · — · — · — |
| J    | · — · — · — · — | 6          | · — · — · — · — · — · — |
| K    | · — · — · — · — | 7          | · — · — · — · — · — · — |
| L    | · — · — · — · — | 8          | · — · — · — · — · — · — |
| M    | · — · —         | 9          | · — · — · — · — · — · — |
| N    | · — ·           | 0          | · — · — · — · — · — · — |
| O    | · — · — · —     | 00         | · — · — · — · — · — · — |
| P    | · — · — · — · — | 000        | · — · — · — · — · — · — |
| Q    | · — · — · — · — | 0000       | · — · — · — · — · — · — |
| R    | · — · — · —     | 00000      | · — · — · — · — · — · — |
| S    | · · · ·         | 000000     | · — · — · — · — · — · — |
| T    | · —             | 0000000    | · — · — · — · — · — · — |
| U    | · · · ·         | 00000000   | · — · — · — · — · — · — |
| V    | · · · ·         | 000000000  | · — · — · — · — · — · — |
| W    | · — · — · —     | 0000000000 | · — · — · — · — · — · — |
| X    | · — · — · — · — |            |                         |



# Compilations

*If value for money is the order of the day, cast your eye over our collection of compilation games and decide how to spend your Christmas cash*

*By Tony Hetherington*

As the nights get longer and the days get colder the software houses turn to compilations that pack a punch to warm the cockles of your computer. The shop shelves are helping with compilations that offer not only reissues for the price of one, but also feature new titles and rebates!

Last month's game of the month went to US Gold's Solid Gold Compilation that featured Wipeout Gears, Ace of Aces, Initiative, Leader Board and Gauntlet all for £9.99. Now this has been joined by compilations from the UK. Now this has been joined by compilations from the UK. Now this has been joined by compilations from the UK. Now this has been joined by compilations from the UK. Now this has been joined by compilations from the UK. Now this has been joined by compilations from the UK.

Software Projects has compiled two double decks featuring both versions of the redoubt non-operational Dragon's Lair and the two games that are now part of software history, Maze, Maze and the sequel Dr. Seel. Withy noted the Platinum game crate in the UK and now you can get both at these for just £2.99!

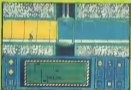
Dragon's Lair was the first video disk arcade machine in which Dirk the Daring battled through wild goads made flying hellish horses and finally defeated Sarg the Dragon. Now you can read in Dirk's footsteps in Dragon's Lair and Escape from Sarg's Castle which together offers a comprehensive reissue of this top-top classic.

Sports fans will find great value for money in Orban's Game Set and Match which contains ten games and over 20 15 frame events. First on the plate is Orban's World Tennis Baseball which is quickly followed by a game of Match Point and the excellent Jonah Barnington's Spanish a game of Water Soccer a match of Super Soccer a version of Guinness's Two on Two Basketball a game of Konami's Ping Pong and eight rounds of Accurate's Rally Madigan's Bonus. If you do get any change left then for you can tackle Duke Thompson's Super race that will have you showing exciting diving, skiing, rowing, penalty taking, ice jumping and tug of war with the great men. Or you can try the wondrous skis showing weight lifting and archery of Hyper Sports. Guaranteed to break your check but not the bank.



Two on Two

Two on Two Basketball is also available on the Gemstar (Activision) Sportspack that also contains Championship Baseball and GFI Championship Football (American).



Incredible Wrecks

If purports was one of the last "events" games from Game (Namco) who started it all with Dicky Thompson's Destruction. Since then American game Epic has taken over with its series of World Class World Games and more California Games. In this, Soccer Game, just moved out on the Decathlon track has now back on the Epic's Epic compilation from US Gold which also includes the high speed split screen racing action of Pitstop II, the superb walking talking football tapestrie Myway and the Moon Walk and Head Sports of Breakout.

If Epic has dominated the sports scene then there can be no doubt that Elite is the King of the coin-op conversions. Now you can buy the best of Elite for only £14.99. In a double tape pack you get one of my all time favourites, Paperboy along with Frank Beamer's Boxing, Commander Bombard, Assault, Clones and Gobbers, Space Hammer and Breakout III.



Elite of America Inc.

Great offer action and adventure will be the way, only if it is, because (1995) compilation in which you can enjoy the Tony Moran. Just anything in sight as Rambo or a Human Being, take to the plains in the daylight action of breaking out of a POW camp in the Great Escape. Choose your weapons and you would be the time processor of a advertisement of The Great Escape.



Paper Boy

If you think eight games for the price of one is good to be then what about Best of the Best on Compaq or Neo4 which are exclusive one free games bringing the total to 12 games for 19.99! Remember Heaven's futuristic racing shoot 'em up called Alleycat, Mario's new game Loco Moto and Gears, Dream's Spectrum? Well, they're joined by Best of the PlayStation (Beats), Classic Soccer and Mega Madness (Andy's), Grand Atoms of Animals (Peter's), Destruction (Amelio's), Soccer, and Starquake (Pablo's). Heaven will Mega Madness in Loco Moto and Beach (Elton, Dream) which are all packed on to a single tape.



Loco Moto



Power Play

The Power House consider their compilation of eight budget games a "software album" and so the games on Power Play are still available individually if you get the lot and save yourself some cash. For your money you'll get one of the most addictive platform games ever written or



Best of Britain

Hercules and a variety of sand horses, the three Gung-Ho, Terminator, Mission, Space Warrior, Action Ranger and Gun Hammer and the pairing man explanation game Super

Wargames needs to feel left out of the competition, even if PWS have released Conflict 1 containing three strategic simulations. Now you can relive the Battle of Britain, the conquest of Fallujah 82 and fight the controversial Theatre Europe all for the cost of a single cassette.

Two great games for the price of one is the offer from Cromie Graphics. If you take it up, you've also got you'll be able to enjoy the the Caswell game Average Adventure, the scrolling platform game that, as an up-advance that's Future Knight, knock the heads out of Karkoon, bonus, to glory in Boulder and shoot to the top in Football of all time. If you've got one left in your pocket after that, for you can run the race of your life in the exceptional Trailblazer. Meet the 100 miles of Highway, Electronic post Mount on the Race, rob the West Bank, or be an outlaw as you can as Jack the Nipper, Karkoon, Boulder, Future Knight, and Trailblazer has a put to be worth \$3.99 on their own and with games like Average and Mount on the Race as a bonus, it just has to be a winner.

US Gold has another completion of part two but you'll have to search for the square WH search to find it. Play it again in only a table floor. For your US Gold I mention a pack that contains the master mixers, the Best of the Dead with Frank's Top Pin Bowling (M style), English Software's Lovathan, Inflator and the fun and hope Aero's gold

month Leader Board as well as the two other games included in Leader Board Tournament.

Finally, you can pick up a complete set of fun games and help the fight against credits to children. As you play games such as Bounty Bob Strikes Back (US Gold), Sixel, Electronic Arts' Monte in the Run (Cromie) and Dirktragedy (English) the proceeds of the sales will be helping the NSPCC and NSPCC to stamp out cruelty to kids. It couldn't be better in that it's kid-friendly.



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| 31 gauge | 0.18 | 100 | 0.18 | 100 |
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| 33 gauge | 0.20 | 100 | 0.20 | 100 |
| 34 gauge | 0.21 | 100 | 0.21 | 100 |

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# Poker Face

*If your latest game always leaves you at death's door,  
this could pull you through!*

*By Norman Doyle*

Is it a book? Is it a game? No, it's *What Now?*—a collection of both, screenshots and posted reviews from *What Now?*

Once upon a time, the computer gaming lexicon used to be an unofficial gentleman's club. Games were there to play and chats were frowned upon. This has all changed since people realized that some games are enjoyable without a little assistance and now the sordid pastime of PEEKs and POKs has become a major response mechanism.

*What Now?* strips away the trappings of the traditional magazine and concentrates heavily on screenshots, reviews and of course the peeks themselves.

Despite its edgy feel as a magazine, the editorial team certainly has the image of the A4 format by printing in an A5 booklet. This has the advantage of producing a well budgeted handbook, which is such a need on your desktop!

The series of books are broken down into subject areas. C16 users have a separate issue from C04

users, and adventures are treated on their own as a specialist genre.

In the 70 pages of the first issue of the C64 Volume 2, there are 41 peeks, seven maps, two lists and two solutions. The rest of the magazine consists of reviews and features written in a very concise fashion.

After reading the *Roll! Roll! Roll!* article, I was able to find additional responses in the introductory pages. I expected a little more input. The editorial explains that the established contributors are in the pocket of the adventure. Although the quality was



it was a two-way rip-off, I still think that this is a popular myth. Some companies do get full treatment at the hands of the reviewers but this is a result of a generally good track record. It's very unlikely that the reviewer's D3 fan would ever admit that the book has produced a few words worth. At least one of the reviews in *What Now?* takes a sympathetic attitude towards Howard's Zeno as they can't claim to be free of the reviewer's disease.

A final, as personal opinion and I would not hold a hostile preference



for the colour but although I enjoy other people's odd designs.

The reviews are 'bottom line', they say nothing much about the game and then you are given the opinion of a panel of reviewers. Taking the overall impression is not going to prove that one man's meat is another man's poison. The review of *Rollback's* Killer Ring, for example, has comments ranging from 'totally average' to 'an excellent shoot-em-up'.

Well, this is not the purpose of *What Now?* Its main aim is to help and help others. If the reviewer can't do it, the magazine delivers the goods but I feel that you're still paying for a far degree of wallpaper compared to the traditional colourful adventures. Monthly magazine. Despite its thickness, *What Now?* has not succeeded in beginning as a broadsheet, only the price has changed.

#### Timeline

Name: *What Now? Publisher: MJD  
Series: 1100 titles. C64: Best  
Reader: Operation: Monthly. MJD  
1/6. Price: £1.00*



# Get The Point

*Using a pointer to select menu options turns a mundane task into a pleasure.*

*By Martin Reddy*

**T**he Amiga was an arrow to catch operators from the screen and the pull-down menu. You don't have to buy GDCs to add this to your C64 when one 386 bytes of program will do the job for you.

The program runs as an interrupt and allows as much flexibility as possible. Under program control or in direct mode, you can either lead the character under the arrow or return the X,Y coordinates of the arrow.

PEEKing location \$20 will reveal the screen code of the character under the arrow cursor. If that is not required then PEEK(\$20) will reveal the X coordinate of the cursor pointer while \$21 stores the Y coordinate.

As this character can be put to many uses, the cursor colour may need to be changed according to the background. Any colour can be selected simply by putting its numerical value into location \$21.

The speed of the arrow can also be altered through location 4007 (\$B073). This contains the default value of 5 at first but any value from 1 to 255 can be pointed at. The rule to follow is that the lower the value, the faster the speed at which the cursor moves.

The program is stored at the top of the Basic memory at locations 40000 to

40191 (\$C000-40137). This means that it will work in conjunction with most machine code and Basic programs. In the latter case you should make sure that you lower the top of Basic, so preventing variable storage from overwriting the cursor control program. Try using it with the window generator (First Considered August 1987) to see how any program can be given that professional touch.

If an arrow isn't suited to your application or if you want to use High colour mode, the shape of the cursor can be altered. The character definition is stored in the last 16 bytes of the code and takes the form of an 8x16 pixel block, or two characters on top of one another. If you do change the character remember that the character number that the character definition is stored at will have to be altered accordingly.

The interrupt is set up operation by %YS 40000.





# Listings

Get it right first time with our deluxe program system for the C64.

You may have noticed that our listings are free of those horrible little black blobs which need you searching around the keyboard for a suitable graphic symbol. You may also have noticed the funny numbers by the side of each line of the listing. First no more! It's all part of our easy entry aid.

Instead of those nasty graphics and rows of countless spaces in PRINT statements and strings, we use a special coding system. The code, or mnemonic, is always contained in square brackets and you'll soon learn to decipher their meanings.

For example, [SA] would mean space in a Shifted A, or an asc of space or screen's name, and [SABK] would mean a row of ten of these symbols.

[S+2] means hold down the shift key and press the plus key twice. It doesn't take a great leap of logic to realize that [C+2] means exactly the same thing, except that the C, Commodore for Commodore, bit of the keyboard is held down instead of the shift key.

Ignore that two spaces appear in a statement then this will be printed as [SPACE] or, exceptionally, [SPACE4]. Duplicated into English the meanings for the symbols four times or in the latter case hold the shift key down while you do it.

A string of special characters could appear as:

[CTRL N DOWN2LEFTS BLUE, F4C4]

This would be entered by holding

down the CTRL key as you press N, press the cursor left, down twice, the cursor left key, five times, press the key marked BLUE, while holding down the CTRL key, press the F4 key and, finally hold the Commodore key down while pressing the number twelve. [C2] would of course make the computer print as listing.

Always remember that you should only have a row of graphics when, say, on your screen you have square brackets and no mnemonic, unless something like that appears.

[SA] [C\*]

In this case the two characters should have a comma between them.

On rare occasions [REV 2] will appear in a listing. This is a delay symbol and is created by entering the key up to the mnemonic. Then to go a closing quotation mark (SHIFT & 2) and delete it. This gets the computer out of quotes mode. Hold down CTRL, and press the number nine key. [RYSDN] type the relevant number of reversed T's and then hold down CTRL and press zero. [RVSDFY] Now type another quotation mark and delete it again. Now finish the line and press RETURN.

A list of these special codes is given in the table but remember that only one of these mnemonics will appear outside of a PRINT string, the symbol for go. This may appear when its value is needed in a calculation or the user look something like

CC=2+PI\*P

Ignore the square brackets and just type in a shifted apostrophe pointing across (as the pi symbol).

| PROGRAM: BINARY TO DECIMAL |                                |
|----------------------------|--------------------------------|
| 5                          | DEF FNIN (X) = (X <> 0) AND 1  |
| 10                         | DEF FNOUT (X) = (X <> 0) AND 1 |
| 20                         | DEF FNIN (X) = (X <> 0) AND 1  |
| 30                         | DEF FNOUT (X) = (X <> 0) AND 1 |
| 40                         | DEF FNIN (X) = (X <> 0) AND 1  |
| 50                         | DEF FNOUT (X) = (X <> 0) AND 1 |
| 60                         | DEF FNIN (X) = (X <> 0) AND 1  |
| 70                         | DEF FNOUT (X) = (X <> 0) AND 1 |
| 80                         | DEF FNIN (X) = (X <> 0) AND 1  |
| 90                         | DEF FNOUT (X) = (X <> 0) AND 1 |
| 100                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 110                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 120                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 130                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 140                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 150                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 160                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 170                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 180                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 190                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 200                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 210                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 220                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 230                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 240                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 250                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 260                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 270                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 280                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 290                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 300                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 310                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 320                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 330                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 340                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 350                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 360                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 370                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 380                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 390                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 400                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 410                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 420                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 430                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 440                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 450                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 460                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 470                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 480                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 490                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 500                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 510                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 520                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 530                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 540                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 550                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 560                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 570                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 580                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 590                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 600                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 610                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 620                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 630                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 640                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 650                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 660                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 670                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 680                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 690                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 700                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 710                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 720                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 730                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 740                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 750                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 760                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 770                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 780                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 790                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 800                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 810                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 820                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 830                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 840                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 850                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 860                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 870                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 880                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 890                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 900                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 910                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 920                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 930                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 940                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 950                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 960                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 970                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 980                        | DEF FNIN (X) = (X <> 0) AND 1  |
| 990                        | DEF FNOUT (X) = (X <> 0) AND 1 |
| 1000                       | DEF FNIN (X) = (X <> 0) AND 1  |

by Eric Doyle

## Checksum Program

The hexadecimal numbers appearing in a column in the left of the listing should not be typed in with the program. These are merely checksum values and are there to help you get each line right. Don't worry if you don't understand the hexadecimal system, as long as you can compare two characters on the screen with the corresponding two characters in the magazine you can use our line checking program.

Type in the Checksum Program, make sure that you've not made any mistakes and save it to tape or disk

immediately because it will be used with most of the present and future listings appearing in Your Commodore.

At the start of each programming session, load Checksum and run it. The screen will turn brown with yellow characters and each time you type in a line and press the RETURN key a number will appear on the screen in white. This should be the same as the corresponding value in the magazine.

If the two values don't match or one another you have not typed the line exactly as printed so go back and check each character carefully. When you find the error simply correct it and

















press RETURN again.

If you want to turn off the checker simply type SYS49132 and the screen will return to the familiar blue colour. You can then do whatever it was you wanted to do and if this doesn't take the area where Checksum lies you can go back to it with the same SYS command.

## Lower Case

Many of the listings are presented in lower case. To turn your computer to lower case mode press the Commodore key and the SHIFT key at the same time. 

| Mnemonic | Symbol                                                                              | Keypress                |
|----------|-------------------------------------------------------------------------------------|-------------------------|
| [RIGHT]  |    | CTRL left/right         |
| [LEFT]   |    | SHIFT & CTRL left/right |
| [DOWN]   |    | CTRL up/down            |
| [UP]     |    | SHIFT & CTRL up/down    |
| [F1]     |    | F1 key                  |
| [F2]     |    | SHIFT & F1 key          |
| [F3]     |    | F3 key                  |
| [F4]     |   | SHIFT & F3 key          |
| [F5]     |  | F5 key                  |
| [F6]     |  | SHIFT & F5 key          |
| [F7]     |  | F7 key                  |
| [F8]     |  | SHIFT & F7 key          |
| [HOME]   |  | CLR/HOME                |
| [CLR]    |  | SHIFT & CLR/HOME        |
| [RYSON]  |  | CTRL & 9                |
| [RVSDFV] |  | CTRL & 0                |

| Mnemonic  | Symbol                                                                              | Keypress         |
|-----------|-------------------------------------------------------------------------------------|------------------|
| [BLACK]   |    | CTRL & 1         |
| [WHITE]   |    | CTRL & 2         |
| [RED]     |    | CTRL & 3         |
| [CYAN]    |    | CTRL & 4         |
| [PURPLE]  |    | CTRL & 5         |
| [GREEN]   |    | CTRL & 6         |
| [BLUE]    |    | CTRL & 7         |
| [YELLOW]  |   | CTRL & 8         |
| [POUND]   |  | 1                |
| [LARBOW]  |  | -                |
| [UPARROW] |  | ↑                |
| [F1]      |  | SHIFT & ↓        |
| [INST]    |  | SHIFT & INST/DEL |
| [REV T]   |  | no text          |
| [Clear]   |  | CTRL + letter    |
| [Screen]  |  | SHIFT + letter   |

YOUR

## COMMODORE

## Listings

## Get The Point



## PROGRAM GET THE POINT

- 61 GO GET THE POINT  
 \*\*\*\*\*  
 62 GO GET THE POINT  
 \*\*\*\*\*  
 63 GO GET THE POINT  
 \*\*\*\*\*  
 64 GO GET THE POINT  
 \*\*\*\*\*  
 65 GO GET THE POINT  
 \*\*\*\*\*  
 66 GO GET THE POINT  
 \*\*\*\*\*  
 67 GO GET THE POINT  
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 68 GO GET THE POINT  
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 100 GO GET THE POINT  
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## Through The Round Window

## Getting it all in

- 1) Type in and save the program  
 WOODS.BOOT  
 If using cassette change the  
 # 1 after the 1,000 to .1 1  
 2) Type in WOODS.LOADER 1 and s  
 and save them. If using tape  
 save them on a different  
 track than WOODS.BOOT  
 If using tape remember to  
 change the # 1 to .1 1  
 as indicated in WOODS.B  
 3) Turn OFF and let your machine  
 load and run WOODS.LOADER 1  
 4) Load and run WOODS.LOADER 2  
 When finished this will ask  
 you to PRESS A key to test  
 when a key is pressed the  
 SCREEN GRAPHIC BOOK will  
 be saved  
 If using tape then this  
 WOODS 2 must be saved immediately  
 after the program WOODS.BOOT



## LISTINGS

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| 69 | 799 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 | 467 | 468 | 469 | 470 | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 | 481 | 482 | 483 | 484 | 485 | 486 | 487 | 488 | 489 | 490 | 491 | 492 | 493 | 494 | 495 | 496 | 497 | 498 | 499 | 500 | 501 | 502 | 503 | 504 | 505 | 506 | 507 | 508 | 509 | 510 | 511 | 512 | 513 | 514 | 515 | 516 | 517 | 518 | 519 | 520 | 521 | 522 | 523 | 524 | 525 | 526 | 527 | 528 | 529 | 530 | 531 | 532 | 533 | 534 | 535 | 536 | 537 | 538 | 539 | 540 | 541 | 542 | 543 | 544 | 545 | 546 | 547 | 548 | 549 | 550 | 551 | 552 | 553 | 554 | 555 | 556 | 557 | 558 | 559 | 560 | 561 | 562 | 563 | 564 | 565 | 566 | 567 | 568 | 569 | 570 | 571 | 572 | 573 | 574 | 575 | 576 | 577 | 578 | 579 | 580 | 581 | 582 | 583 | 584 | 585 | 586 | 587 | 588 | 589 | 590 | 591 | 592 | 593 | 594 | 595 | 596 | 597 | 598 | 599 | 600 | 601 | 602 | 603 | 604 | 605 | 606 | 607 | 608 | 609 | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 | 619 | 620 | 621 | 622 | 623 | 624 | 625 | 626 | 627 | 628 | 629 | 630 | 631 | 632 | 633 | 634 | 635 | 636 | 637 | 638 | 639 | 640 | 641 | 642 | 643 | 644 | 645 | 646 | 647 | 648 | 649 | 650 | 651 | 652 | 653 | 654 | 655 | 656 | 657 | 658 | 659 | 660 | 661 | 662 | 663 | 664 | 665 | 666 | 667 | 668 | 669 | 670 | 671 | 672 | 673 | 674 | 675 | 676 | 677 | 678 | 679 | 680 | 681 | 682 | 683 | 684 | 685 | 686 | 687 | 688 | 689 | 690 | 691 | 692 | 693 | 694 | 695 | 696 | 697 | 698 | 699 | 700 | 701 | 702 | 703 | 704 | 705 | 706 | 707 | 708 | 709 | 710 | 711 | 712 | 713 | 714 | 715 | 716 | 717 | 718 | 719 | 720 | 721 | 722 | 723 | 724 | 725 | 726 | 727 | 728 | 729 | 730 | 731 | 732 | 733 | 734 | 735 | 736 | 737 | 738 | 739 | 740 | 741 | 742 | 743 | 744 | 745 | 746 | 747 | 748 | 749 | 750 | 751 | 752 | 753 | 754 | 755 | 756 | 757 | 758 | 759 | 760 | 761 | 762 | 763 | 764 | 765 | 766 | 767 | 768 | 769 | 770 | 771 | 772 | 773 | 774 | 775 | 776 | 777 | 778 | 779 | 780 | 781 | 782 | 783 | 784 | 785 | 786 | 787 | 788 | 789 | 790 | 791 | 792 | 793 | 794 | 795 | 796 | 797 | 798 | 799 | 800 | 801 | 802 | 803 | 804 | 805 | 806 | 807 | 808 | 809 | 810 | 811 | 812 | 813 | 814 | 815 | 816 | 817 | 818 | 819 | 820 | 821 | 822 | 823 | 824 | 825 | 826 | 827 | 828 | 829 | 830 | 831 | 832 | 833 | 834 | 835 | 836 | 837 | 838 | 839 | 840 | 841 | 842 | 843 | 844 | 845 | 846 | 847 | 848 | 849 | 850 | 851 | 852 | 853 | 854 | 855 | 856 | 857 | 858 | 859 | 860 | 861 | 862 | 863 | 864 | 865 | 866 | 867 | 868 | 869 | 870 | 871 | 872 | 873 | 874 | 875 | 876 | 877 | 878 | 879 | 880 | 881 | 882 | 883 | 884 | 885 | 886 | 887 | 888 | 889 | 890 | 891 | 892 | 893 | 894 | 895 | 896 | 897 | 898 | 899 | 900 | 901 | 902 | 903 | 904 | 905 | 906 | 907 | 908 | 909 | 910 | 911 | 912 | 913 | 914 | 915 | 916 | 917 | 918 | 919 | 920 | 921 | 922 | 923 | 924 | 925 | 926 | 927 | 928 | 929 | 930 | 931 | 932 | 933 | 934 | 935 | 936 | 937 | 938 | 939 | 940 | 941 | 942 | 943 | 944 | 945 | 946 | 947 | 948 | 949 | 950 | 951 | 952 | 953 | 954 | 955 | 956 | 957 | 958 | 959 | 960 | 961 | 962 | 963 | 964 | 965 | 966 | 967 | 968 | 969 | 970 | 971 | 972 | 973 | 974 | 975 | 976 | 977 | 978 | 979 | 980 | 981 | 982 | 983 | 984 | 985 | 986 | 987 | 988 | 989 | 990 | 991 | 992 | 993 | 994 | 995 | 996 | 997 | 998 | 999 | 1000 |
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## LISTINGS

## Utility Function Keys



## PROGRAM - CPU - LOADER

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## Movie Code Index



## PROGRAM MOVIE Loader

Read the instructions with the article BEFORE burning this program

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